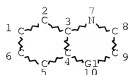


=&gt; d que

L4 STR



REP G1=(0-3) A  
 NODE ATTRIBUTES:  
 DEFAULT MLEVEL IS ATOM  
 DEFAULT ELEVEL IS LIMITED

GRAPH ATTRIBUTES:  
 RING(S) ARE ISOLATED OR EMBEDDED  
 NUMBER OF NODES IS 10

STEREO ATTRIBUTES: NONE

L5 SCR 2043  
 L12 14331 SEA FILE=REGISTRY SSS FUL L4 AND L5  
 L15 164928 SEA FILE=REGISTRY ABB=ON PLU=ON 16.536/RID  
 L16 231 SEA FILE=REGISTRY ABB=ON PLU=ON L12 AND L15  
 L18 137 SEA FILE=HCAPLUS ABB=ON PLU=ON L16  
 L22 QUE ABB=ON PLU=ON LUM!N? OR ELECTROLUM!N? OR ORGANOLUM  
 !N? OR (ELECTRO OR ORGANO OR ORG#) (2A)LUM!N? OR LIGHT?(2A  
 ) (EMIT? OR EMISSION?) OR EL OR E(W)L OR L(W)E(W)D OR OLED  
 L23 117 SEA FILE=HCAPLUS ABB=ON PLU=ON L18 AND L22  
 L27 5102 SEA FILE=REGISTRY ABB=ON PLU=ON L12 AND CARBAZOL?  
 L28 159529 SEA FILE=REGISTRY ABB=ON PLU=ON L15 AND OXADIAZOL?  
 L29 175 SEA FILE=REGISTRY ABB=ON PLU=ON L27 AND L28  
 L30 143 SEA FILE=REGISTRY ABB=ON PLU=ON L29 NOT 1-100/M  
 L31 97 SEA FILE=HCAPLUS ABB=ON PLU=ON L30  
 L32 90 SEA FILE=HCAPLUS ABB=ON PLU=ON L31 AND L23  
 L33 58 SEA FILE=HCAPLUS ABB=ON PLU=ON L32 AND (1840-2003)/PRY,AY  
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 L34 10005 SEA FILE=HCAPLUS ABB=ON PLU=ON L27  
 L35 15972 SEA FILE=HCAPLUS ABB=ON PLU=ON L28  
 L36 990 SEA FILE=HCAPLUS ABB=ON PLU=ON L34 AND L35  
 L37 786 SEA FILE=HCAPLUS ABB=ON PLU=ON L36 AND L22  
 L39 157 SEA FILE=HCAPLUS ABB=ON PLU=ON L37 AND RACT/RL AND  
 DEV/RL  
 L40 75 SEA FILE=HCAPLUS ABB=ON PLU=ON L39 AND PRP/RL  
 L41 72 SEA FILE=HCAPLUS ABB=ON PLU=ON L40 AND OPTIC?/SC, SX  
 L42 15 SEA FILE=HCAPLUS ABB=ON PLU=ON L41 AND L31  
 L43 10 SEA FILE=HCAPLUS ABB=ON PLU=ON L42 AND (1840-2003)/PRY,AY  
 ,PY  
 L44 58 SEA FILE=HCAPLUS ABB=ON PLU=ON L33 OR L43

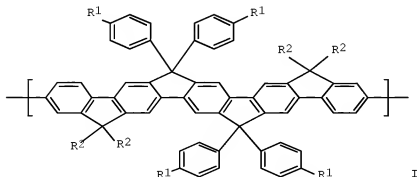
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L44 ANSWER 1 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2005:409397 HCAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 142:454064  
 TITLE: Light-emitting copolymers and  
 electronic devices using such copolymers

INVENTOR(S): Uckert, Frank P.  
 PATENT ASSIGNEE(S): E.I. Dupont de Nemours and Company, USA  
 SOURCE: PCT Int. Appl., 45 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005042176	A1	20050512	WO 2004-US36116	20041028
			<--	
WO 2005042176	A9	20060105		
WO 2005042176	A3	20060309		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KY, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
US 20060192198	A1	20060831	US 2003-696057	20031029
			<--	
US 7115899	B2	20061003	US 2003-696057	A 20031029
PRIORITY APPLN. INFO.:			<--	

ED Entered STN: 13 May 2005  
 GI



AB The invention provides novel pentaphenylene copolymers I [R1 = H, C1-20 alkyl, C2-20 alkenyl, alkynyl, C1-20 alkoxy, oxyalkyl, C2-20 oxyalkenyl, oxyalkynyl, C1-20 fluorinated alkyl, C2-20 fluorinated alkenyl, C1-20 fluorinated oxyalkyl, C2-20 fluorinated oxyalkenyl, fluorinated oxyalkynyl, aryl,

heteroalkyl, heteroalkenyl, heteroalkynyl, heteroaryl, -CN, -OR3, -CO2R3, -SR3, -N(R3)2, -P(R3)2, SOR3, -SO2R3 and -NO2; and adjacent R groups may join to form 5- or 6-membered rings; R2 = C1-20 alkyl, C2-20 alkenyl, alkynyl, C1-20 alkoxy, oxyalkyl, C2-20 oxyalkenyl, oxyalkynyl, C1-20 fluorinated alkyl, C2-20 fluorinated alkenyl, C1-20 fluorinated oxyalkyl, C2-20 fluorinated oxyalkenyl, fluorinated oxyalkynyl, aryl, heteroalkyl, heteroalkenyl, heteroalkynyl, heteroaryl, -CN, -OR3, -CO2R3, -SR3, -N(R3)2, -P(R3)2, SOR3, -SO2R3 and -NO2, and adjacent R groups may join to form 5- or 6-membered rings; R3 = H, alkyl, aryl, heteroalkyl or heteroaryl] which are useful in electronic devices.

IT 851319-18-1P  
(light-emitting copolymers and electronic devices using such copolymers)

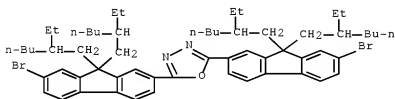
RN 851319-18-1 HCAPLUS

CN 9H-Carbazole, 2,7-dichloro-9-(3,7-dimethyloctyl)-, polymer with 2,5-bis[7-bromo-9,9-bis(2-ethylhexyl)-9H-fluoren-2-yl]-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

CM 1

CRN 660394-01-4

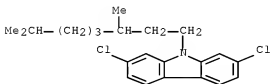
CMF C60 H80 Br2 N2 O



CM 2

CRN 660394-00-3

CMF C22 H27 Cl2 N



IC ICM B05D003-02

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 38

ST polyfluorene electroluminescent display device

IT Electroluminescent devices  
(displays; light-emitting copolymers and

electronic devices using such copolymers)

IT Luminescent screens  
(electroluminescent; light-emitting  
copolymers and electronic devices using such copolymers)

IT 660394-01-4P 851319-18-1P  
(light-emitting copolymers and electronic  
devices using such copolymers)

IT 75-77-4, Trimethyl chlorosilane, reactions 13731-82-3 61676-62-8  
198964-46-4, 2,7-Dibromo-9,9-dioctylfluorene 302554-81-0  
(light-emitting copolymers and electronic  
devices using such copolymers)

IT 620624-92-2P 718640-06-3P 718640-08-5P 718640-10-9P  
718640-13-2P  
(light-emitting copolymers and electronic  
devices using such copolymers)

IT 718640-11-0P  
(light-emitting copolymers and electronic  
devices using such copolymers)

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
RE FORMAT

L44 ANSWER 2 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:253283 HCAPLUS Full-text

DOCUMENT NUMBER: 142:325660

TITLE: Light-emitting compound and  
polymer and luminescent element

INVENTOR(S): Nakaya, Tadao; Matsumoto, Ryoji; Ishitobi, Tatsuro

PATENT ASSIGNEE(S): Hirose Engineering Co., Ltd., Japan

SOURCE: Eur. Pat. Appl., 74 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

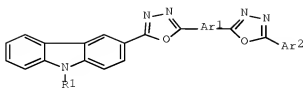
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1516903	A1	20050323	EP 2004-22456	20040921
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JP 2005120071	A	20050512	JP 2004-190451	20040628
<--				
CN 1616458	A	20050518	CN 2004-10078016	20040916
<--				
KR 2005029712	A	20050328	KR 2004-75645	20040921
<--				
US 20050089716	A1	20050428	US 2004-944853	20040921
<--				
PRIORITY APPLN. INFO.:			JP 2003-330594	A 20030922
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			JP 2004-190451	A 20040628

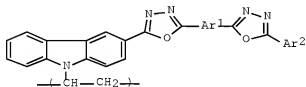
OTHER SOURCE(S): MARPAT 142:325660

ED Entered STN: 24 Mar 2005

GI



I



II

AB The present invention provides a light-emitting compound and a light-emitting polymer capable of emitting white light themselves, and a luminescent element including them. The compound has the structure represented by general formula I [R1 = H, vinyl, (halogenated) C1-10 aryl or alkyl; Ar1 = divalent aromatic ring; Ar2 = aryl group]. The polymer has the repeating unit represented by formula II.

IT 848191-43-5P 848191-49-1P 848191-55-9P  
(electroluminescent compound and polymer)

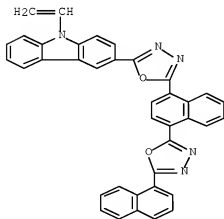
RN 848191-43-5 HCAPLUS

CN 9H-Carbazole, 3-[5-[4-[5-(1-naphthalenyl)-1,3,4-oxadiazol-2-yl]-1-naphthalenyl]-1,3,4-oxadiazol-2-yl]-9-ethenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 848191-42-4

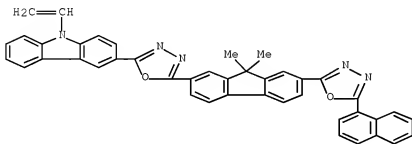
CMF C38 H23 N5 O2



RN 848191-49-1 HCAPLUS  
 CN 9H-Carbazole, 3-[5-[9,9-dimethyl-7-[5-(1-naphthalenyl)-1,3,4-oxadiazol-2-yl]-9H-fluoren-2-yl]-1,3,4-oxadiazol-2-yl]-9-ethenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

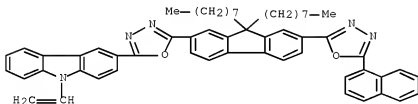
CRN 848191-48-0  
 CMF C43 H29 N5 O2



RN 848191-55-9 HCAPLUS  
 CN 9H-Carbazole, 9-ethenyl-3-[5-[7-[5-(1-naphthalenyl)-1,3,4-oxadiazol-2-yl]-9,9-dioctyl-9H-fluoren-2-yl]-1,3,4-oxadiazol-2-yl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 848191-54-8  
 CMF C57 H57 N5 O2



IC ICM C09K011-06  
 ICS H05B033-14; H01L051-20; H01L051-30; C08F026-12; C07D413-14  
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
 Section cross-reference(s): 38  
 ST polymer electroluminescent device fluorene oxadiazole  
 IT Electroluminescent devices  
 (electroluminescent compound and polymer)  
 IT 123-91-1, 1,4-Dioxane, reactions 302-01-2, Hydrazine, reactions  
 7719-09-7, Thionyl chloride 13234-52-1, 1,4-Naphthalenedicarboxylic  
 dichloride 43038-45-5 690272-91-4 793717-31-4  
 (electroluminescent compound and polymer)

IT 428865-66-1P 765314-37-2P 848191-37-7P 848191-38-8P  
 848191-40-2P 848191-41-3P 848191-42-4P 848191-44-6P  
 848191-45-7P 848191-46-8P 848191-47-9P 848191-48-0P  
 848191-50-4P 848191-51-5P 848191-52-6P 848191-53-7P  
 848191-54-8P

(electroluminescent compound and polymer)

IT 848191-43-5P 848191-49-1P 848191-55-9P

(electroluminescent compound and polymer)

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR  
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
 RE FORMAT

L44 ANSWER 3 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:217024 HCAPLUS Full-text

DOCUMENT NUMBER: 142:306135

TITLE: Material for organic electroluminescent  
 devices and organic electroluminescents  
 employing the material

INVENTOR(S): Narihiro, Harunori; Tamano, Michiko; Tsushima,  
 Nozomi

PATENT ASSIGNEE(S): Toyo Ink Manufacturing Co., Ltd., Japan

SOURCE: PCT Int. Appl., 68 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005022961	A1	20050310	WO 2004-JP10836	20040729
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W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
CN 1830231	A	20060906	CN 2004-80021673	20040729
<--				
US 20080145705	A1	20080619	US 2006-566950	20060203
<--				
PRIORITY APPLN. INFO.:			JP 2003-286948	A 20030805
			<--	
			WO 2004-JP10836	W 20040729

ED Entered STN: 11 Mar 2005

AB A material for organic electroluminescent devices which comprises a copolymer  
 comprising: units each comprising a main chain having a trivalent unconjugated  
 organic residue and a monovalent organic residue bonded to the main chain  
 through a structure comprising two or more groups conjugately bonded to each  
 other; and units each having an amino group.

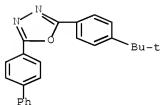
IT 15082-26-7 138372-6-1-5 847670-95-5  
 847670-97-7 847670-98-3

10/566,950

(material and organic electroluminescent device employing it)

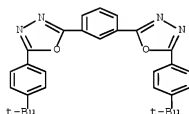
RN 15082-28-7 HCAPLUS

CN 1,3,4-Oxadiazole, 2-[1,1'-biphenyl]-4-yl-5-[4-(1,1-dimethylethyl)phenyl]- (CA INDEX NAME)



RN 138372-67-5 HCAPLUS

CN 1,3,4-Oxadiazole, 2,2'-(1,3-phenylene)bis[5-[4-(1,1-dimethylethyl)phenyl]- (CA INDEX NAME)



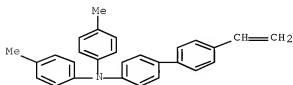
RN 847670-95-5 HCAPLUS

CN [1,1'-Biphenyl]-4-amine, 4'-ethenyl-N,N-bis(4-methylphenyl)-, polymer with 9-(4'-ethenyl[1,1'-biphenyl]-4-yl)-9H-carbazole and 9-ethenyl-9H-carbazole (CA INDEX NAME)

CM 1

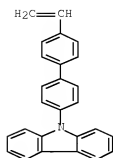
CRN 847670-86-4

CMF C28 H25 N



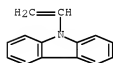
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CRN 845755-86-4  
CMF C26 H19 N



CM 3

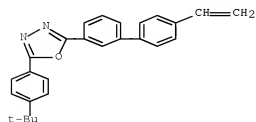
CRN 1484-13-5  
CMF C14 H11 N



RN 847670-97-7 HCAPLUS  
CN [1,1'-Biphenyl]-4-amine, 4'-ethenyl-N,N-bis(4-methylphenyl)-, polymer with 2-[4-(1,1-dimethylethyl)phenyl]-5-(4'-ethenyl[1,1'-biphenyl]-3-yl)-1,3,4-oxadiazole and 9-(4'-ethenyl[1,1'-biphenyl]-4-yl)-9H-carbazole (9CI) (CA INDEX NAME)

CM 1

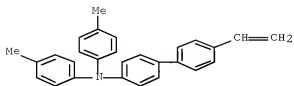
CRN 847670-96-6  
CMF C26 H24 N2 O



CM 2

CRN 847670-86-4

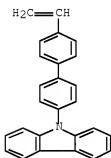
CMF C28 H25 N



CM 3

CRN 845755-86-4

CMF C26 H19 N



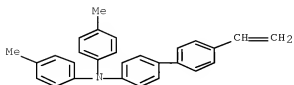
RN 847670-98-8 HCAPLUS

CN [1,1'-Biphenyl]-4-amine, 4'-ethenyl-N,N-bis(4-methylphenyl)-, polymer with 2-[4-(1,1-dimethylethyl)phenyl]-5-(4'-ethenyl[1,1'-biphenyl]-4-yl)-1,3,4-oxadiazole, 9-(4'-ethenyl[1,1'-biphenyl]-4-yl)-9H-carbazole and 9-ethenyl-9H-carbazole (9CI) (CA INDEX NAME)

CM 1

CRN 847670-86-4

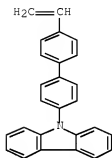
CMF C28 H25 N



CM 2

CRN 845755-86-4

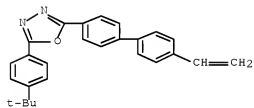
CMF C26 H19 N



CM 3

CRN 85884-56-6

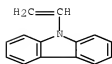
CMF C26 H24 N2 O



CM 4

CRN 1484-13-5

CMF C14 H11 N



IT 847670-87-5P 847670-90-0P 847670-91-1P  
847670-93-3P 847670-94-4P 847670-99-9P

(material and organic electroluminescent device employing it)

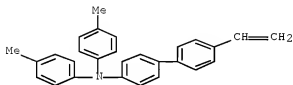
RN 847670-87-5 HCAPLUS

CN [1,1'-Biphenyl]-4-amine, 4'-ethenyl-N,N-bis(4-methylphenyl)-, polymer with 9-(4'-ethenyl[1,1'-biphenyl]-4-yl)-9H-carbazole (CA INDEX NAME)

CM 1

CRN 847670-86-4

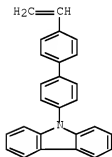
CMF C28 H25 N



CM 2

CRN 845755-86-4

CMF C26 H19 N



RN 847670-90-0 HCAPLUS

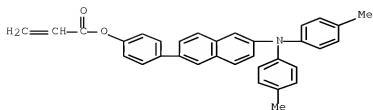
CN 3-Butenoic acid, 4-[5-(9H-carbazol-9-yl)-2-pyridinyl]-3-cyanophenyl ester, polymer with 4-[6-[bis(4-methylphenyl)amino]-2-naphthalenyl]phenyl 2-propenoate and 1-(1,1-dimethylethyl)-4-ethenylbenzene (9CI) (CA INDEX NAME)

CM 1

CRN 847670-89-7

CMF C33 H27 N O2

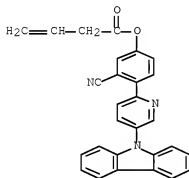
10/566,950



CM 2

CRN 847670-88-6

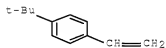
CMF C28 H19 N3 O2



CM 3

CRN 1746-23-2

CMF C12 H16



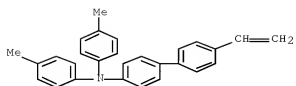
RN 847670-91-1 HCAPLUS

CN [1,1'-Biphenyl]-4-amine, 4'-ethenyl-N,N-bis(4-methylphenyl)-, polymer with 2-[4-(1,1-dimethylethyl)phenyl]-5-(4'-ethenyl[1,1'-biphenyl]-4-yl)-1,3,4-oxadiazole and 9-(4'-ethenyl[1,1'-biphenyl]-4-yl)-9H-carbazole (CA INDEX NAME)

CM 1

CRN 847670-86-4

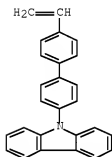
CMF C28 H25 N



CM 2

CRN 845755-86-4

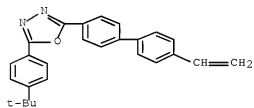
CMF C26 H19 N



CM 3

CRN 85884-56-6

CMF C26 H24 N2 O



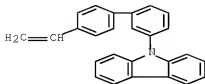
RN 847670-93-3 HCAPLUS

CN [1,1'-Biphenyl]-4-amine, 4'-ethenyl-N,N-bis(4-methylphenyl)-, polymer with 9-(4'-ethenyl[1,1'-biphenyl]-3-yl)-9H-carbazole (CA INDEX NAME)

CM 1

CRN 847670-92-2

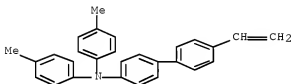
CMF C26 H19 N



CM 2

CRN 847670-86-4

CMF C28 H25 N



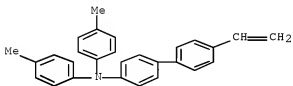
RN 847670-94-4 HCAPLUS

CN [1,1'-Biphenyl]-4-amine, 4'-ethenyl-N,N-bis(4-methylphenyl)-, polymer with 9-ethenyl-9H-carbazole and 9-(4'-ethenyl-2,5-dimethyl[1,1'-biphenyl]-4-yl)-9H-carbazole (9CI) (CA INDEX NAME)

CM 1

CRN 847670-86-4

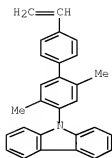
CMF C28 H25 N



CM 2

CRN 845755-77-3

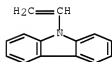
CMF C28 H23 N



CM 3

CRN 1484-13-5

CMF C14 H11 N



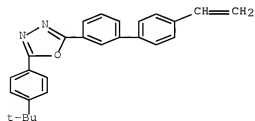
RN 847670-99-9 HCAPLUS

CN [1,1'-Biphenyl]-4-amine, 4'-ethenyl-N,N-bis(4-methylphenyl)-, polymer with 2-[4-(1,1-dimethylethyl)phenyl]-5-(4'-ethenyl[1,1'-biphenyl]-3-yl)-1,3,4-oxadiazole, 9-(4'-ethenyl[1,1'-biphenyl]-4-yl)-9H-carbazole and 9-ethenyl-9H-carbazole (9CI) (CA INDEX NAME)

CM 1

CRN 847670-96-6

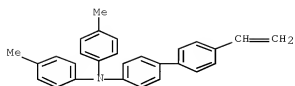
CMF C26 H24 N2 O



CM 2

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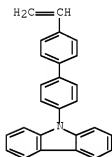
CMF C28 H25 N



CM 3

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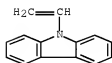
CMF C26 H19 N



CM 4

CRN 1484-13-5

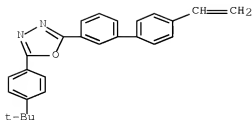
CMF C14 H11 N



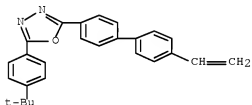
IT 847670-96-6  
(material and organic electroluminescent device employing  
it)

RN 847670-96-6 HCAPLUS

CN 1,3,4-Oxadiazole, 2-[4-(1,1-dimethylethyl)phenyl]-5-(4'-ethenyl[1,1'-  
biphenyl]-3-yl)- (CA INDEX NAME)



IT 85984-56-6  
 (material and organic electroluminescent device employing  
 it)  
 RN 85884-56-6 HCAPLUS  
 CN 1,3,4-Oxadiazole, 2-[4-(1,1-dimethylethyl)phenyl]-5-(4'-ethenyl[1,1'-  
 biphenyl]-4-yl)- (CA INDEX NAME)



IC ICM H05B033-14  
 ICS C09K011-06  
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other  
 Related Properties)  
 Section cross-reference(s): 38  
 ST material org electroluminescent device  
 IT Polymers, uses  
 (co-; material and organic electroluminescent device  
 employing it)  
 IT Luminescent substances  
 (electroluminescent; material and organic  
 electroluminescent device employing it)  
 IT Electroluminescent devices  
 (organic; material and organic electroluminescent device  
 employing it)  
 IT 15082-28-7 130372-67-5 847670-95-5  
 847670-97-7 847670-98-8  
 (material and organic electroluminescent device employing  
 it)  
 IT 847670-87-5P 847670-90-0P 847670-91-1P  
 847670-93-3P 847670-94-4P 847670-99-9P  
 (material and organic electroluminescent device employing  
 it)  
 IT 7429-90-5, Aluminum, uses 7440-70-2, Calcium, uses 155090-83-8,  
 PEDOT/PSS 586972-48-7D, complex with iridium  
 (material and organic electroluminescent device employing  
 it)  
 IT 847670-92-2 847670-96-6

(material and organic electroluminescent device employing it)  
 IT 57102-42-8P 845755-86-4P 847670-86-4P  
 (material and organic electroluminescent device employing it)  
 IT 86-74-8, 9H-Carbazole 589-87-7 1484-13-5 2156-04-9  
 57884-56-6 845755-77-3 847671-00-5  
 (material and organic electroluminescent device employing it)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L44 ANSWER 4 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2004:985920 HCAPLUS Full-text

DOCUMENT NUMBER: 141:417582

TITLE: Blue light-emitting compounds, blue light-emitting polymers, processes of preparing the blue light-emitting compounds and luminescent element including the blue light-emitting polymers

INVENTOR(S): Nakaya, Tadao; Tobita, Michiaki; Saikawa, Tomoyuki; Ishitobi, Tatsuro; Ushijima, Takashi; Takano, Shinji; Tajima, Akio

PATENT ASSIGNEE(S): Hirose Engineering Co., Ltd., Japan

SOURCE: Eur. Pat. Appl., 108 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1477544	A2	20041117	EP 2004-102113	20040513
EP 1477544	A3	20061206	<--	
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR				
US 20040234814	A1	20041125	US 2004-844352	20040513
			<--	
JP 2005154404	A	20050616	JP 2004-143337	20040513
			<--	
PRIORITY APPLN. INFO.:			JP 2003-139677	A 20030516
			<--	
			JP 2003-368157	A 20031028
			<--	

OTHER SOURCE(S): MARPAT 141:417582

ED Entered STN: 18 Nov 2004

AB Blue-light-emitting compds. are described which comprise substituted N-vinyl carbazoles and polymers containing repeating units formed from substituted N-vinyl carbazole monomers. Methods for preparing the N-vinyl carbazole derivs. are described which entail reacting a halogen compound with a hydrazide to produce an intermediate; dehydrating the intermediate; and dehydrohalogenating the dehydrated intermediate. Alternately, a Friedel-Crafts reaction may be carried out with an appropriate halogen compound to produce an organic halogen which can then be dehydrohalogenated to produce the desired compound

Luminescent elements with light-emitting layers comprising the polymers are also described.

IT 793717-34-7P 793717-38-1P 793717-42-7P  
793717-47-2P

(blue light-emitting N-vinyl carbazole derivative  
comps. and polymers and processes of preparing the blue light  
-emitting comps. and luminescent elements  
including the polymers)

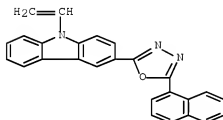
RN 793717-34-7 HCAPLUS

CN 9H-Carbazole, 9-ethenyl-3-[5-(1-naphthalenyl)-1,3,4-oxadiazol-2-yl]-,  
homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 793717-33-6

CMF C26 H17 N3 O



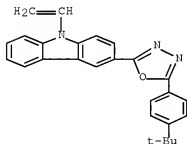
RN 793717-38-1 HCAPLUS

CN 9H-Carbazole, 3-[5-[4-(1,1-dimethylethyl)phenyl]-1,3,4-oxadiazol-2-yl]-  
9-ethenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 793717-37-0

CMF C26 H23 N3 O

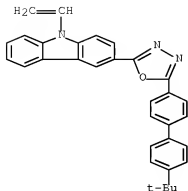


RN 793717-42-7 HCAPLUS

CN 9H-Carbazole, 3-[5-[4'-(1,1-dimethylethyl)[1,1'-biphenyl]-4-yl]-1,3,4-  
oxadiazol-2-yl]-9-ethenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

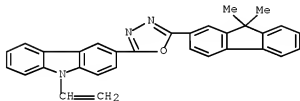
CRN 793717-41-6  
 CMF C32 H27 N3 O



RN 793717-47-2 HCAPLUS  
 CN 9H-Carbazole, 3-[5-(9,9-dimethyl-9H-fluoren-2-yl)-1,3,4-oxadiazol-2-yl]-9-ethenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 793717-46-1  
 CMF C31 H23 N3 O



IC ICM C09K011-06  
 ICS C07D413-10; C07D263-02; C07D209-82; C08F026-12  
 CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
 Section cross-reference(s): 27, 38, 76  
 ST vinyl carbazole deriv blue light emitting compd;  
 polyvinyl carbazole deriv blue light emitting compd; light emitting device polyvinyl carbazole deriv  
 IT Electroluminescent devices  
 Luminescent substances  
 (blue light-emitting N-vinyl carbazole derivative compds. and polymers and processes of preparing the blue light-emitting compds. and luminescent elements including the polymers)  
 IT Luminescent substances  
 (electroluminescent; blue light-emitting N-vinyl carbazole derivative compds. and polymers and

processes of preparing the blue light-emitting  
compds. and luminescent elements including the polymers)

IT 793717-34-7P 793717-38-1P 793717-42-7P  
793717-47-2P 793717-50-7P 793717-53-0P 793717-56-3P  
793717-59-6P 793717-64-3P 793717-65-4P  
(blue light-emitting N-vinyl carbazole derivative  
compds. and polymers and processes of preparing the blue light  
-emitting compds. and luminescent elements  
including the polymers)

IT 793717-33-6P 793717-37-0P 793717-41-6P 793717-46-1P  
793717-49-4P 793717-52-9P 793717-55-2P 793717-58-5P  
793717-62-1P 793717-63-2P  
(blue light-emitting N-vinyl carbazole derivative  
compds. and polymers and processes of preparing the blue light  
-emitting compds. and luminescent elements  
including the polymers)

IT 80-41-1, 2-Chloroethyl p-toluenesulfonate 86-74-8, Carbazole  
824-55-5, 2,4-Dimethylbenzyl chloride 7719-09-7, Thionyl chloride  
24463-19-2, 9-Chloromethylanthracene 43038-45-5, 1-Naphthoyl  
hydrazide 43100-38-5 97585-99-4 765314-45-2 793717-43-8  
(blue light-emitting N-vinyl carbazole derivative  
compds. and polymers and processes of preparing the blue light  
-emitting compds. and luminescent elements  
including the polymers)

IT 1140-35-8P, N-(2-Chloroethyl)carbazole 70419-85-1P 79894-25-0P  
793717-30-3P 793717-31-4P 793717-32-5P 793717-35-8P  
793717-36-9P 793717-39-2P 793717-40-5P 793717-44-9P  
793717-45-0P 793717-48-3P 793717-51-8P 793717-54-1P  
793717-57-4P 793717-60-9P 793717-61-0P  
(blue light-emitting N-vinyl carbazole derivative  
compds. and polymers and processes of preparing the blue light  
-emitting compds. and luminescent elements  
including the polymers)

L44 ANSWER 5 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2004:696394 HCAPLUS Full-text  
DOCUMENT NUMBER: 141:207660  
TITLE: Monomers, conjugated polymers, their production,  
and electronic devices using conjugated  
light-emitting polymers  
INVENTOR(S): Wang, Hailiang; Uckert, Frank P.; Kim, Sunghan  
PATENT ASSIGNEE(S): E.I. Du Pont De Nemours and Company, USA  
SOURCE: PCT Int. Appl., 55 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004072123	A2	20040826	WO 2004-US4163	20040210
			<--	
WO 2004072123	A3	20041229		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI			
RW:	BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT,			

BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,  
 IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI,  
 CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

US 20040192871 A1 20040930 US 2004-771014 20040203  
 <--

US 7138483 B2 20061121  
 PRIORITY APPLN. INFO.: US 2003-446823P P 20030212  
 <--

ED Entered STN: 26 Aug 2004

AB The energy levels (HOMO, LUMO) of the conjugated polymer are tuned independently, so that an energy match on both sides of the device can be accomplished while keeping the emission color in the blue region. Such polymers can be formed by polymerization of a mixture of monomers. The mixture of the monomers contains  $\geq 1$  monomer having an electron-deficient group sandwiched by 2 aromatic hydrocarbon groups and  $\geq 1$  hole transporting (HT) monomer. The mixture of monomers may also contain a solubility enhancement (SE) monomer and/or a branching monomer. These polymers can be used in fabricating light emitting diodes to achieve high efficiency and blue color purity.

IT 744214-02-6P 744214-03-7P 744214-04-8P  
 744214-05-9P 744214-06-0P 744214-08-2P  
 (monomers and blue light emitting conjugated  
 polymers for electronic devices)

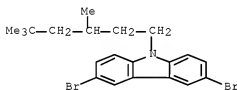
RN 744214-02-6 HCAPLUS

CN 9H-Carbazole, 3,6-dibromo-9-(3,5,5-trimethylhexyl)-, polymer with  
 2,5-bis[7-bromo-9,9-bis(2-ethylhexyl)-9H-fluoren-2-yl]-1,3,4-  
 oxadiazole and 2,7-dibromo-9,9-bis(2-ethylhexyl)-9H-fluorene (9CI)  
 (CA INDEX NAME)

CM 1

CRN 744214-01-5

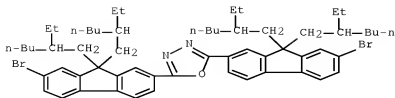
CMF C21 H25 Br2 N



CM 2

CRN 660394-01-4

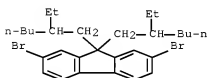
CMF C60 H80 Br2 N2 O



CM 3

CRN 188200-93-3

CMF C29 H40 Br2



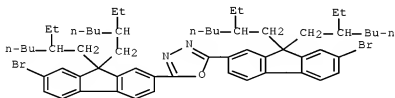
RN 744214-03-7 HCAPLUS

CN 9H-Carbazole, 2,7-dichloro-9-(3,7-dimethyloctyl)-, polymer with  
2,5-bis[7-bromo-9,9-bis(2-ethylhexyl)-9H-fluoren-2-yl]-1,3,4-  
oxadiazole and 2,7-dibromo-9,9-bis(2-ethylhexyl)-9H-fluorene (9CI)  
(CA INDEX NAME)

CM 1

CRN 660394-01-4

CMF C60 H80 Br2 N2 O

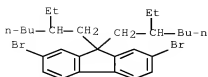


CM 2

CRN 660394-00-3

CMF C22 H27 Cl2 N

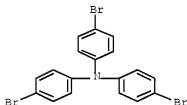




CM 3

CRN 4316-58-9

CMF C18 H12 Br3 N



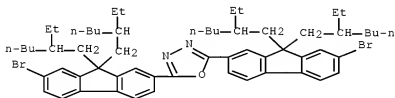
RN 744214-05-9 HCAPLUS

CN Benzenamine, 4-bromo-N,N-bis(4-bromophenyl)-, polymer with  
 2,5-bis[7-bromo-9,9-bis(2-ethylhexyl)-9H-fluorene-2-yl]-1,3,4-  
 oxadiazole, 2,7-dibromo-9,9-bis(2-ethylhexyl)-9H-fluorene and  
 2,7-dichloro-9-(3,7-dimethyloctyl)-9H-carbazole (9CI) (CA INDEX NAME)

CM 1

CRN 660394-01-4

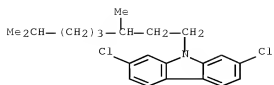
CMF C60 H80 Br2 N2 O



CM 2

CRN 660394-00-3

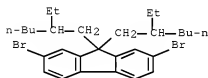
CMF C22 H27 Cl2 N



CM 3

CRN 188200-93-3

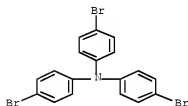
CMF C29 H40 Br2



CM 4

CRN 4316-58-9

CMF C18 H12 Br3 N



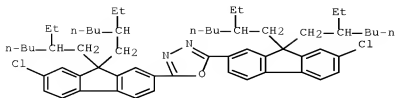
RN 744214-06-0 HCAPLUS

CN 9H-Carbazole, 2,7-dichloro-9-(3,7-dimethyloctyl)-, polymer with  
 2,5-bis[7-chloro-9,9-bis(2-ethylhexyl)-9H-fluorene-2-yl]-1,3,4-  
 oxadiazole and 2,7-dichloro-9,9-bis(2-ethylhexyl)-9H-fluorene (9CI)  
 (CA INDEX NAME)

CM 1

CRN 744213-97-6

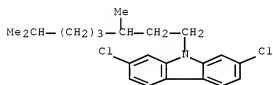
CMF C60 H80 Cl2 N2 O



CM 2

CRN 660394-00-3

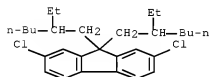
CMF C22 H27 Cl2 N



CM 3

CRN 188200-89-7

CMF C29 H40 Cl2



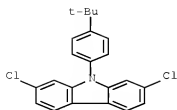
RN 744214-08-2 HCAPLUS

CN Benzenamine, 4-bromo-N,N-bis(4-bromophenyl)-, polymer with  
 2,5-bis[7-bromo-9,9-bis(2-ethylhexyl)-9H-fluoren-2-yl]-1,3,4-  
 oxadiazole, 2,7-dibromo-9,9-bis(2-ethylhexyl)-9H-fluorene and  
 2,7-dichloro-9-[4-(1,1-dimethylethyl)phenyl]-9H-carbazole (9CI) (CA  
 INDEX NAME)

CM 1

CRN 744214-07-1

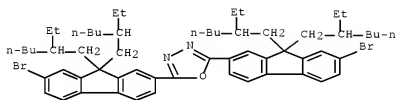
CMF C22 H19 Cl2 N



CM 2

CRN 660394-01-4

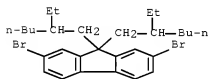
CMF C60 H80 Br2 N2 O



CM 3

CRN 188200-93-3

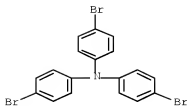
CMF C29 H40 Br2



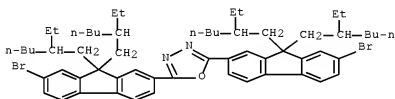
CM 4

CRN 4316-58-9

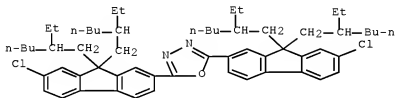
CMF C18 H12 Br3 N



IT 660394-01-4P 744213-97-6P  
 (preparation, purification, and polymerization; monomers and blue light  
 emitting conjugated polymers for electronic devices)  
 RN 660394-01-4 HCAPLUS  
 CN 1,3,4-Oxadiazole, 2,5-bis[7-bromo-9,9-bis(2-ethylhexyl)-9H-fluoren-2-  
 yl]- (CA INDEX NAME)



RN 744213-97-6 HCAPLUS  
 CN 1,3,4-Oxadiazole, 2,5-bis[7-chloro-9,9-bis(2-ethylhexyl)-9H-fluoren-2-  
 yl]- (CA INDEX NAME)



IC ICM C08F  
 CC 35-4 (Chemistry of Synthetic High Polymers)  
 Section cross-reference(s): 73, 76  
 ST blue light emitting diode conjugated polymer  
 IT Polyoxadiazoles  
 (aromatic; monomers and blue light emitting  
 conjugated polymers for electronic devices)  
 IT Electroluminescent devices  
 (blue-emitting; monomers and blue light emitting  
 conjugated polymers for electronic devices)  
 IT Electroluminescent devices  
 (monomers and blue light emitting conjugated

polymers for electronic devices)  
 IT 99586-26-2P 744213-95-4P 744213-96-5P  
 (intermediate; monomers and blue light emitting  
 conjugated polymers for electronic devices)  
 IT 744214-02-6P 744214-03-7P 744214-04-8P  
 744214-05-9P 744214-06-0P 744214-08-2P  
 (monomers and blue light emitting conjugated  
 polymers for electronic devices)  
 IT 50926-11-9, ITO 126213-51-2, PEDOT  
 (monomers and blue light emitting conjugated  
 polymers for electronic devices)  
 IT 124-38-9, Carbon dioxide, reactions 128-09-6, N-Chlorosuccinimide  
 344-03-6, 1,4-Dibromotetrafluorobenzene 1133-80-8 3383-83-3,  
 1-Bromo-3,7-dimethyloctane 5419-55-6, Triisopropylborate  
 6825-20-3, 3,6-Dibromocarbazole 14011-37-1, Hydrazine hydrochloride  
 16433-88-8, 2,7-Dibromofluorene 18908-66-2, 2-Ethylhexyl bromide  
 24171-03-7 50915-80-5, 1-Bromo-3,5,5-trimethylhexane 102871-58-9,  
 2,7-Dichlorocarbazole  
 (monomers and blue light emitting conjugated  
 polymers for electronic devices)  
 IT 632331-65-8P 744213-99-8P  
 (monomers and blue light emitting conjugated  
 polymers for electronic devices)  
 IT 188200-93-3P 660394-00-3P 660394-01-4P  
 744213-97-6P 744213-98-7P 744214-00-4P 744214-01-5P  
 (preparation, purification, and polymerization; monomers and blue light  
 emitting conjugated polymers for electronic devices)

L44 ANSWER 6 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2004:534276 HCAPLUS Full-text

DOCUMENT NUMBER: 141:96372

TITLE: Electroluminescent device

INVENTOR(S): Brunner, Klemens; Van Dijken, Albert; Boerner,  
 Herbert F.; Langeveld, Bea M. W.; Kiggen, Nicole  
 M. M.; Bastiaansen, Jolanda J. A. M.; De Kok-Van  
 Breemen, Margaretha M.

PATENT ASSIGNEE(S): Koninklijke Philips Electronics N.V., Neth.

SOURCE: PCT Int. Appl., 47 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

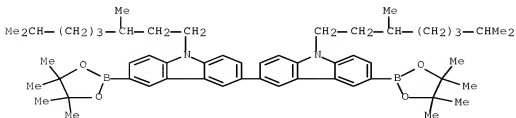
LANGUAGE: English

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004055129	A1	20040701	WO 2003-IB5782	20031205
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W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA,				
CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,				
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP,				
KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,				
MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE,				
SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC,				
VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM,				
AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE,				
DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,				
SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML,				
MR, NE, SN, TD, TG				

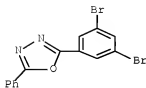
AU 2003303067	A1	20040709	AU 2003-303067	20031205
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EP 1572832	A1	20050914	EP 2003-813243	20031205
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PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
CN 1'23257	A	20060118	CN 2003-80105635	20031205
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JP 2006510231	T	20060323	JP 2005-502473	20031205
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US 20060051611	A1	20060309	US 2005-538099	20050608
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PRIORITY APPLN. INFO.:			EP 2002-102754	A 20021213
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			NL 2003-1022660	A 20030212
			<--	
			EP 2003-102262	A 20030723
			<--	
			WO 2003-1B5782	W 20031205
			<--	
ED	Entered STN: 02 Jul 2004			
AB	An electroluminescent device comprises a combination of a charge-transporting conjugated donor compound and a phosphorescent acceptor compound, the charge-transporting conjugated donor compound including a conjugated unit comprising a multivalent radical sub-unit having a 1st and a 2nd unsatd. radical site and a shortest chain of unsatd. atoms connecting the 1st and the 2nd radical site. The number of unsatd. atoms the shortest chain consists of is an odd integer, preferably 1. Such odd-integer sub-units provide the donor compound with lowest-energy triplet levels which are relatively high in energy which in turn enable the EL device, when the donor compound is combined with a suitable acceptor compound, to emit light with high efficiency. Highly efficient green-emitting electroluminescent devices are obtained in this manner.			
IT	714972-53-9 (charge-transporting conjugated donor for electroluminescent device)			
RN	714972-53-9 HCAPLUS			
CN	3,3'-Bi-9H-carbazole, 9,9'-bis(3,7-dimethyloctyl)-6,6'-bis(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)-, polymer with 2-(3,5-dibromophenyl)-5-phenyl-1,3,4-oxadiazole and 1,3,5-tribromobenzene (9CI) (CA INDEX NAME)			
CM	1			
CRN	714972-52-8			
CMF	C56 H78 B2 N2 O4			



CM 2

CRN 500300-16-3

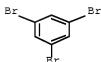
CMF C14 H8 Br2 N2 O



CM 3

CRN 626-39-1

CMF C6 H3 Br3



- IC ICM C09K011-06  
 ICS H01L051-30; C08G073-06; C08L079-04; H05B033-14; H01B001-12  
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
 ST electroluminescent device charge transporting conjugated donor phosphorescent acceptor  
 IT Electron donors  
   (charge-transporting conjugated for electroluminescent device)  
 IT Electroluminescent devices  
   (containing charge-transporting conjugated donor and phosphorescent acceptor)  
 IT Electroluminescent devices  
   (green-emitting; containing charge-transporting conjugated donor and phosphorescent acceptor)  
 IT Excited triplet state  
   (in charge-transporting conjugated donor for electroluminescent device)  
 IT Electron transfer  
   (in conjugated donor for electroluminescent device)  
 IT Electron acceptors  
   (phosphorescent for electroluminescent device)  
 IT 57102-48-4 193017-42-4 628336-90-3 714972-47-1 714972-48-2  
   714972-49-3 714972-50-6 714972-51-7 714972-53-9  
   714972-55-1 714972-56-2 714972-57-3 714972-58-4 714972-59-5  
   (charge-transporting conjugated donor for electroluminescent device)

IT 553-54-8, Lithium benzoate 2085-33-8, Tris(8-hydroxyquinolinato)aluminum 4733-39-5, Bathocuproin 123847-85-8,  $\alpha$ -NPD  
(in electroluminescent device)  
IT 94928-86-6, Tris(2-phenylpyridine)iridium 504409-35-2  
(phosphorescent acceptor for electroluminescent device)  
REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L44 ANSWER 7 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2004:267207 HCAPLUS [Full-text](#)  
DOCUMENT NUMBER: 140:304660  
TITLE: Electroactive and electroluminescent polymers, monomers, organic electronic devices which comprise these polymers and compositions, and fabricating these devices  
INVENTOR(S): Roberts, Ralph R.; Bentsen, James G.; Li, Yingbo  
PATENT ASSIGNEE(S): 3M Innovative Properties Company, USA  
SOURCE: U.S. Pat. Appl. Publ., 86 pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20040062930	A1	20040401	US 2002-254218	20020925
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US 7094902	B2	20060822		
WO 2004102615	A2	20041125	WO 2003-US24911	20030807
			<--	
WO 2004102615	A3	20060105		
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RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
AU 2003304128	A1	20041203	AU 2003-304128	20030807
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EP 1573789	A2	20050914	EP 2003-816845	20030807
			<--	
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK			
JP 2006514148	T	20060427	JP 2004-571902	20030807
			<--	
CN 1777629	A	20060524	CN 2003-822840	20030807
			<--	
US 20060155106	A1	20060713	US 2006-276878	20060317
			<--	
PRIORITY APPLN. INFO.:			US 2002-254218	A 20020925
			<--	

ED Entered STN: 01 Apr 2004

AB Electroactive polymeric arylenes and intermediates are useful for electronic devices. Donor sheets incorporating light-emitting polymers in a transfer layer were produced for laser induced thermal imaging studies.

IT 676350-05-3DP, Ph end capped

(electronic devices which comprise arylene polymers)

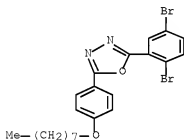
RN 676350-05-3 HCAPLUS

CN 9H-Carbazole, 3,6-dibromo-9-phenyl-, polymer with 2,7-dibromo-9,9-dioctyl-9H-fluorene, 2-(2,5-dibromophenyl)-5-[4-(octyloxy)phenyl]-1,3,4-oxadiazole and 2,2'-(9,9-dioctyl-9H-fluorene-2,7-diyl)bis[4,4,5,5-tetramethyl-1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

CM 1

CRN 676349-86-3

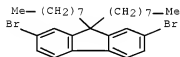
CMF C22 H24 Br2 N2 O2



CM 2

CRN 198964-46-4

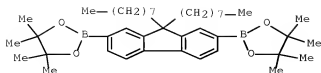
CMF C29 H40 Br2



CM 3

CRN 196207-58-6

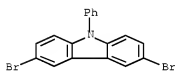
CMF C41 H64 B2 O4



CM 4

CRN 57103-20-5

CMF C18 H11 Br2 N



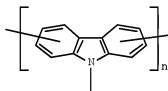
- IC ICM G03F007-34  
ICS G03F007-11
- INCL 428411100; X43-020.0; X43-020.1; X43-031.9; X43-027.11; X42-891.7;  
X52-8 .4
- CC 37-3 (Plastics Manufacture and Processing)  
Section cross-reference(s): 73, 74, 76
- ST electroluminescent device polymeric arylene; thermal  
transfer donor element polymeric arylene
- IT Electroluminescent devices  
(lamps; electronic devices which comprise light-  
emitting arylene polymers)
- IT 610-71-9, 2,5-Dibromobenzoic acid  
(chlorination; electronic devices which comprise light-  
emitting arylene polymers)
- IT 108-86-1DP, Bromobenzene, reaction products with arylene polymers  
108-90-7DP, Chlorobenzene, reaction products with arylene polymers  
302554-80-9DP, 2-Bromo-9,9-dioctylfluorene, reaction products with  
arylene polymers 676349-97-6DP, Ph end capped 676349-98-7DP, Ph  
end capped 676349-99-8DP, Ph end capped 676350-00-8DP, Ph end  
capped 676350-01-9DP, Ph end capped 676350-03-1P 676350-04-2DP,  
Ph end capped 676350-05-3DP, Ph end capped 676350-06-4DP,  
Ph end capped 676479-00-8P 676479-04-2P 676479-16-6P  
676479-56-4P  
(electronic devices which comprise arylene polymers)
- IT 676349-83-0P  
(electronic devices which comprise light-emitting  
arylene polymers)
- IT 50-79-3, 2,5-Dichlorobenzoic acid 111-83-1, 1-Octyl bromide  
302-01-2, Hydrazine, reactions 328-70-1, 3,5-  
Bistrifluoromethylbromobenzene 2251-50-5, Pentafluorobenzoyl  
chloride 2905-69-3, Methyl 2,5-dichlorobenzoate 4181-05-9,  
4-(Diphenylamino)benzaldehyde 7466-54-8 10025-87-3, Phosphorus  
chloride oxide (PCl3O) 36809-26-4 54149-17-6, 1-Bromo-2-(2-  
methoxyethoxy)ethane 61676-62-8, 2-Isopropoxy-4,4,5,5-tetramethyl-

- 1,3,2-dioxaborolane  
(electronic devices which comprise light-emitting  
arylene polymers)
- IT 93986-10-8P 267221-88-5P 618442-58-3P 618442-59-4P  
618442-60-7P  
(end capping agent; electronic devices which comprise light  
-emitting arylene polymers)
- IT 642477-39-2  
(hole transport polymer; electronic devices which comprise  
light-emitting arylene polymers)
- IT 428865-62-7P  
(intermediate chlorination; electronic devices which comprise  
light-emitting arylene polymers)
- IT 89-75-8P, 2,4-Dichlorobenzoyl chloride 55510-49-1P 67487-35-8P,  
2,5-Dichlorobenzohydrazide 302554-80-9P, 2-Bromo-9,9-dioctylfluorene  
331988-94-4P 676349-81-8P 676349-85-2P 676349-87-4P  
676349-90-9P 676349-92-1P 676349-94-3P  
(intermediate; electronic devices which comprise light-  
emitting arylene polymers)
- IT 180690-29-3P  
(monomer; electronic devices which comprise light-  
emitting arylene polymers)
- IT 676349-82-9P 676349-84-1P 676349-86-3P 676349-88-5P  
676349-91-0P 676349-93-2P 676349-95-4P 676349-96-5P  
(monomer; electronic devices which comprise light-  
emitting arylene polymers)
- IT 25069-74-3P  
(preparation and polymerization; electronic devices which comprise  
light-emitting arylene polymers)
- IT 104-94-9, p-Anisidine  
(reaction with benzohydrazide derivative; electronic devices which  
comprise light-emitting arylene polymers)
- IT 16433-88-8, 2,7-Dibromofluorene  
(reaction with bromo methoxyethoxy ethane; electronic devices which  
comprise light-emitting arylene polymers)
- IT 196207-58-6  
(reaction with bromodiphenylaniline; electronic devices which  
comprise light-emitting arylene polymers)
- IT 676349-89-6P  
(reaction with dichlorobenzohydrazide; electronic devices which  
comprise light-emitting arylene polymers)
- IT 43100-38-5, 4-tert-Butylbenzoyl hydrazide  
(reaction with dichlorobenzoyl chloride; electronic devices which  
comprise light-emitting arylene polymers)
- IT 59615-13-3P, 2,5-Dibromobenzoyl Chloride  
(reaction with hydrazide compound; electronic devices which comprise  
light-emitting arylene polymers)
- IT 62435-37-4P, Methyl 4-octyloxybenzoate  
(reaction with hydrazine; electronic devices which comprise  
light-emitting arylene polymers)
- IT 122-01-0, 4-Chlorobenzoyl chloride  
(reaction with methoxybenzoyl hydrazide; electronic devices which  
comprise light-emitting arylene polymers)
- IT 2905-62-6, 3,5-Dichlorobenzoyl chloride 23950-59-6,  
3,5-Dibromobenzoyl chloride  
(reaction with octoxybenzoyl hydrazide; electronic devices which  
comprise light-emitting arylene polymers)
- IT 99-76-3, Methyl 4-hydroxybenzoate 1133-80-8, 2-Bromofluorene  
(reaction with octyl bromide; electronic devices which comprise  
light-emitting arylene polymers)

L44 ANSWER 8 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2004:174889 HCAPLUS Full-text  
 DOCUMENT NUMBER: 142:29538  
 TITLE: Host materials for triplet emitters  
 AUTHOR(S): Anon.  
 CORPORATE SOURCE: Neth.  
 SOURCE: IP.com Journal (2003), 4(1), 26 (No.  
 IPCOM000021063D), 19 Dec 2003  
 CODEN: IJPOBX; ISSN: 1533-0001  
 PUBLISHER: IP.com, Inc.  
 DOCUMENT TYPE: Journal; Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
IP 21063D		20031219	IP 2003-21063D	20031219
			<--	
PRIORITY APPLN. INFO.:			IP 2003-21063D	20031219
			<--	

ED Entered STN: 04 Mar 2004  
 GI



I

AB Carbazole compds. are described by the general formula I ( $n \geq 2$ ) in which each carbazole unit may be (un)substituted with  $\geq 1$  substituents. The carbazole compds. may be combined with light-emitting compds. (e.g., triplet emitter compds.) capable of accepting energy from the carbazole compds. Electroluminescent devices employing the compds. or the light-emitting compound-carbazole compound combinations are also described.

IT 801321-10-8  
 (oligomeric or polymeric carbazole compds. and luminescent compds. containing them and electroluminescent devices using them)

RN 801321-10-8 HCAPLUS

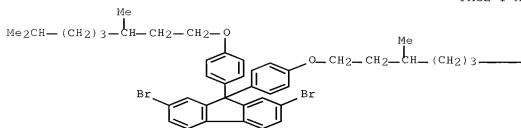
CN 3,3'-Bi-9H-carbazole, 6,6'-dibromo-9,9'-dioctyl-, polymer with 2,7-dibromo-9,9-bis[4-[(3,7-dimethyloctyl)oxy]phenyl]-9H-fluorene and 2-(3,5-dibromophenyl)-5-phenyl-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

CM 1

CRN 801321-06-2

CMF C45 H56 Br2 O2

PAGE 1-A

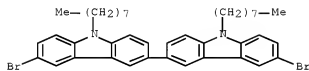


PAGE 1-B

—CHMe<sub>2</sub>

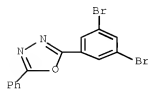
CM 2

CRN 726169-76-2

CMF C40 H46 Br<sub>2</sub> N<sub>2</sub>

CM 3

CRN 500300-16-3

CMF C14 H8 Br<sub>2</sub> N<sub>2</sub> O

- CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
Section cross-reference(s): 27, 76
- ST carbazole oligomer polymer host org electroluminescent device
- IT Electroluminescent devices  
luminescent substances  
(oligomeric or polymeric carbazole compds. and luminescent compns. containing them and electroluminescent devices using them)
- IT 94928-86-6, fac-Tris(2-phenylpyridine)iridium. 337526-95-1  
801321-09-5 801321-10-8  
(oligomeric or polymeric carbazole compds. and luminescent compns. containing them and electroluminescent devices using them)
- IT 57102-48-4P 193017-42-4P 628336-90-3P 714972-57-3P  
(oligomeric or polymeric carbazole compds. and luminescent compns. containing them and electroluminescent devices using them)
- IT 801321-08-4P  
(oligomeric or polymeric carbazole compds. and luminescent compns. containing them and electroluminescent devices using them)
- IT 75-75-2, Methanesulfonic acid 86-74-8, Carbazole 104-92-7, 4-Bromoanisole 111-83-1, Octyl bromide 128-08-5, N-Bromosuccinimide 586-75-4, 4-Bromobenzoyl chloride 619-42-1, Methyl 4-bromobenzoate 3383-83-3, 3,7-Dimethyloctyl bromide 7803-57-8, Hydrazine monohydrate 14348-75-5, 2,7-Dibromofluorenone 61676-62-8, 2-Isopropoxy-4,4,5,5-tetramethyl-1,3,2-dioxaborolane (oligomeric or polymeric carbazole compds. and luminescent compns. containing them and electroluminescent devices using them)
- IT 4041-19-4P, 9-Octylcarbazole 5933-32-4P, 4-Bromobenzoylhydrazine 19264-74-5P, 9-(4-Methoxyphenyl)carbazole 19542-05-3P, 2,5-Bis(4-bromophenyl)-1,3,4-oxadiazole 69673-99-0P 79554-93-1P 169169-89-5P 196207-58-6P 198964-46-4P, 2,7-Dibromo-9,9-dioctylfluorene 302554-80-9P, 2-Bromo-9,9-dioctylfluorene 302554-81-0P 325461-30-1P 409104-51-4P 500300-16-3P 628336-84-5P 628337-00-8P 714972-47-1P 714972-49-3P 714972-52-8P 726169-76-2P 726169-77-3P 726169-80-8P 726169-83-1P 746651-47-8P 746651-48-9P 746651-49-0P 746651-50-3P 746651-51-4P 746651-52-5P 746651-55-8P 746651-56-9P 746651-57-0P 746651-58-1P 746651-62-7P 801321-06-2P 801321-07-3P  
(oligomeric or polymeric carbazole compds. and luminescent compns. containing them and electroluminescent devices using them)
- IT 714972-51-7P 746651-60-5P 746651-61-6P  
(oligomeric or polymeric carbazole compds. and luminescent compns. containing them and electroluminescent devices using them)

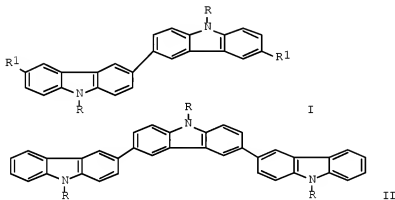
L44 ANSWER 9 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2004:173859 HCAPLUS Full-text  
DOCUMENT NUMBER: 141:357637  
TITLE: Electroluminescent device  
AUTHOR(S): Anon.  
CORPORATE SOURCE: USA  
SOURCE: IP.com Journal (2003), 4(1), 24 (No. IPCOM000021047D), 16 Dec 2003

PUBLISHER: CODEN: IJPOBX; ISSN: 1533-0001  
 DOCUMENT TYPE: IP.com, Inc.  
 LANGUAGE: Journal; Patent  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION: English

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
IP 21047D		20031218	IP 2003-21047D	20031218
			<--	
PRIORITY APPLN. INFO.:			IP 2003-21047D	20031218
			<--	

ED Entered STN: 03 Mar 2004

GI



AB The invention relates to an electroluminescent device comprising a combination of a charge-transporting conjugated donor compound and a phosphorescent acceptor compound. The invention further relates to the use of a charge-transporting conjugated donor compound in such a combination. The synthesis of donor compound I (R = p-methoxyphenyl) is described in a related application 1022660. On an ITO-covered glass substrate, a layer stack HTL/LEL/HBL/ETL/EIE is deposited by means of vacuum deposition having the following composition: 30.1 nm  $\alpha$ -NPD/ 30 nm (91.7 %wt I (R = p-methoxyphenyl), 8.3 %wt Ir(ppy)<sub>3</sub>) / 10 nm bathocuproin/ 40 nm Alq<sub>3</sub>/ 1.5 nm Li-benzoate/ 70 nm Al wherein  $\alpha$ -NPD is N,N'-di(naphthalen-1-yl)- N,N'-diphenyl-benzidine and bathocuproin is 2,9-dimethyl-4,7-diphenyl- 1,10-phenanthroline. Alq<sub>3</sub> is aluminum trisoxine. The carbazole donor compound I (R = p-methoxyphenyl) is evaporated at 240°C. The device emits green light characteristic of the phosphorescent acceptor compound Ir(ppy)<sub>3</sub>. The external efficiency of the device is about 30 to 35 cd/A. Although not necessarily wishing to be bound by any theory, it is believed that such efficiencies can only be obtained if triplet excitons on the carbazole donor compound are efficiently transferred to the phosphorescent acceptor compound and/or triplet excitons on the triplet emitter are effectively prevented from being transferred to the carbazole donor compound. Such efficient transfer and/or effective prevention of back-transfer requires the lowest-energy triplet level of the carbazole donor compound to be located above the emitter level of the phosphorescent

acceptor compound The triplet level of the carbazole I ( R= p-methoxyphenyl) is about 22,200 cm<sup>-1</sup> and of the donor compound II (R= p-methoxyphenyl) . The emitter level 30 of Ir(ppy)3 is about 18,000 cm<sup>-1</sup>.

IT 775355-91-6

(electroluminescent device comprising a combination of charge-transporting conjugated donor compound and phosphorescent acceptor compound)

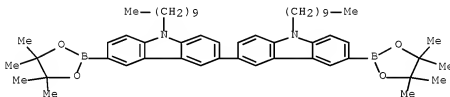
RN 775355-01-6 HCAPLUS

CN 3,3'-Bi-9H-carbazole, 9,9'-didecyl-6,6'-bis(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)-, polymer with 2-(3,5-dibromophenyl)-5-phenyl-1,3,4-oxadiazole and 1,3,5-tribromobenzene (9CI) (CA INDEX NAME)

CM 1

CRN 775354-97-7

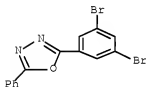
CMF C56 H78 B2 N2 O4



CM 2

CRN 500300-16-3

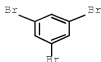
CMF C14 H8 Br2 N2 O



CM 3

CRN 626-39-1

CMF C6 H3 Br3



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
 Section cross-reference(s): 35

ST electroluminescent device charge transporting conjugated donor compd phosphorescent acceptor

IT Electroluminescent devices  
 Triplet state  
 (electroluminescent device comprising a combination of charge-transporting conjugated donor compound and phosphorescent acceptor compound)

IT 626-39-1D, polymer with fluorene and oxadiazole 2085-33-8, Alq3 4733-39-5, Bathocuproin 50926-11-9, ITO 94928-86-6 123847-85-8,  $\alpha$ -NPD 500300-16-3D, polymer with fluorene and tribromobenzene 775354-97-7D, polymer with fluorene and oxadiazole 775355-61-6  
 (electroluminescent device comprising a combination of charge-transporting conjugated donor compound and phosphorescent acceptor compound)

IT 57102-48-4 193017-42-4 628336-90-3 714972-47-1 714972-48-2 714972-55-1 714972-56-2 714972-57-3 726169-78-4 726169-79-5 726169-81-9 726169-82-0 726169-83-1 775354-83-1  
 (electroluminescent device comprising a combination of charge-transporting conjugated donor compound and phosphorescent acceptor compound)

IT 7429-90-5, Aluminum, uses 7440-39-3, Barium, uses (layer; electroluminescent device comprising a combination of charge-transporting conjugated donor compound and phosphorescent acceptor compound)

IT 50851-57-5, Polystyrenesulfonic acid (polyethylenedioxythiophene doped with; electroluminescent device comprising a combination of charge-transporting conjugated donor compound and phosphorescent acceptor compound)

IT 126213-51-2, Polyethylenedioxythiophene (polystyrenesulfonic acid-doped; electroluminescent device comprising a combination of charge-transporting conjugated donor compound and phosphorescent acceptor compound)

L44 ANSWER 10 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2004:159414 HCAPLUS Full-text

DOCUMENT NUMBER: 140:190125

TITLE: Electric charge injection transport materials for electroluminescent elements

INVENTOR(S): Sakakibara, Mitsuhiko; Liang, Tao

PATENT ASSIGNEE(S): JSR Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 17 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004059733	A	20040226	JP 2002-219944	20020729
			<--	
PRIORITY APPLN. INFO.:			JP 2002-219944	20020729
			<--	

OTHER SOURCE(S): MARPAT 140:190125

ED Entered STN: 27 Feb 2004

GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB Title materials comprise (A) polythiophene compds. I, (B) polystyrene sulfonic acid, and (C) 21 porphyrin type compound selected from II and III, wherein R1, R2 = H or C1-18 alkyl or aryl; R3, R4, R5, R6 = H, alkyl, (substituted)amino, aryl, or heterocyclic group; R7, R8, R9, R10 = H, carboxyl, alkyl, vinyl, aryl, or heterocyclic group; X = CR or N atom; and R = H, Ph, vinyl, or alkyl group. Thus, 1.5 % 1,5,10,15-tetrakis(4-pyridyl)porphyrin and Baytron P-CH 8000 were mixed, coated on an ITO-coated glass plate, dried at 150° for 30 min, a luminous layer comprising iridium complex and hole transporting polymer was formed thereon, an electron injection layer comprising bathophenanthroline and cesium was formed thereon, which was coated with aluminum and packed with a glass to give an electroluminescent device with luminescent brightness 3 + 104 cd/m2, luminescent efficiency 9 lm/W, and half-life time index 30,000.

IT 596815-60-0

(hole carrier, luminous layer; elec. charge injection  
transport materials for electroluminescent elements)

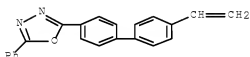
RN 596815-60-0 HCAPLUS

CN 9H-Carbazole, 9-ethenyl-, polymer with 2-(4'-ethenyl[1,1'-biphenyl]-4-yl)-5-phenyl-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

CM 1

CRN 136180-42-2

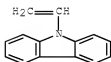
CMF C22 H16 N2 O



CM 2

CRN 1484-13-5

CMF C14 H11 N



IC ICM C08L065-00

ICS C08K005-3415; H05B033-14; H05B033-22; C08L025-18

CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 38

ST elec charge injection transport material electroluminescent  
 element; Baytron tetrapyrroldiporphyrin hole carrier material  
 IT Electroluminescent devices  
 Hole transport  
 (elec. charge injection transport materials for  
 electroluminescent elements)  
 IT Electron transport  
 (electron; elec. charge injection transport materials for  
 electroluminescent elements)  
 IT Porphyrins  
 (hole carriers; elec. charge injection transport materials for  
 electroluminescent elements)  
 IT Conducting polymers  
 (polythiophenes, blend with polystyrene sulfonic acid, hole  
 carriers; elec. charge injection transport materials for  
 electroluminescent elements)  
 IT 50851-57-5, Polystyrene sulfonic acid  
 (blend with polythiophene, hole carrier; elec. charge injection  
 transport materials for electroluminescent elements)  
 IT 1662-01-7, Bathophenanthroline 7440-46-2, Cesium, properties  
 (electron injector layer; elec. charge injection transport  
 materials for electroluminescent elements)  
 IT 155090-83-8, Baytron P-CH 8000  
 (hole carrier layer; elec. charge injection transport materials for  
 electroluminescent elements)  
 IT 16834-13-2, 21H,23H-Porphine, 5,10,15,20-tetra-4-pyridinyl-  
 (hole carrier layer; elec. charge injection transport materials for  
 electroluminescent elements)  
 IT 596815-60-0  
 (hole carrier, luminous layer; elec. charge injection  
 transport materials for electroluminescent elements)  
 IT 574-93-6, Phthalocyanine 574-93-6D, 29H,31H-Phthalocyanine, carboxy  
 derivs. 917-23-7, Tetraphenylporphyrin  
 (hole carrier; elec. charge injection transport materials for  
 electroluminescent elements)  
 IT 94928-86-6, Tris(2-Phenylpyridine) iridium  
 (phosphorescent agent, luminous layer containing; elec.  
 charge injection transport materials for electroluminescent  
 elements)

L44 ANSWER 11 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2004:143238 HCAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 140:182406  
 TITLE: Metallic complexes covalently bound to conjugated  
 polymers and electronic devices  
 INVENTOR(S): Herron, Norman; Lecloux, Daniel David; Simmons,  
 Howard E., III; Uckert, Frank P.  
 PATENT ASSIGNEE(S): E. I. Du Pont De Nemours and Company, USA  
 SOURCE: PCT Int. Appl., 53 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004015025	A1	20040219	WO 2003-US23690	20030729

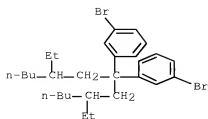
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CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD,  
 GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ,  
 LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,  
 NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK,  
 SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA,  
 ZM, ZW  
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ,  
 BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK,  
 EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE,  
 SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR,  
 NE, SN, TD, TG

US 20040072018	A1	20040415	US 2003-625096	20030722
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US 7090929	B2	20060815		
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AU 2003256975	A1	20040225	AU 2003-256975	20030729
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EP 1554361	A1	20050720	EP 2003-784837	20030729
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CN 1671818	A	20050921	CN 2003-818311	20030729
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JP 2006503126	T	20060126	JP 2004-527669	20030729
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PRIORITY APPLN. INFO.:			US 2002-399934P	P 20020730
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			WO 2003-US23690	W 20030729
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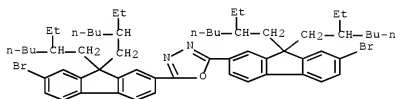
ED Entered STN: 22 Feb 2004  
 AB The polymeric metal complexes comprise metallic (e.g. La, Pt, Ir, Al) complexes covalently bound to conjugated polymers and luminescent materials containing such polymeric metal complexes. The electronic luminescent devices have active layer that includes such polymeric metal complexes. A metal complex of IrOH[2-[2,4-(difluorophenyl)isoquinoline]2]2 (prepared from IrCl3 hydrate and (difluorophenyl)isoquinoline ligand) was prepared, which could be reacted with a copolymer containing fluorenyloxidiazole units.  
 IT 660394-03-6P  
 (Pt, Ir, and Al complex with fluorene, fluorenyloxidiazole, and octylcarbazole copolymer for)  
 RN 660394-03-6 HCAPLUS  
 CN Benzoic acid, 3,5-dibromo-, methyl ester, polymer with 2,5-bis[7-bromo-9,9-bis(2-ethylhexyl)-9H-fluoren-2-yl]-1,3,4-oxadiazole, 2,7-dichloro-9-(3,7-dimethyloctyl)-9H-carbazole and 1,1'-(3-ethyl-1-(2-ethylhexyl)heptylidene)bis[3-bromobenzene] (9CI) (CA INDEX NAME)  
 CM 1  
 CRN 660394-02-5  
 CME C29 H42 Br2



CM 2

CRN 660394-01-4

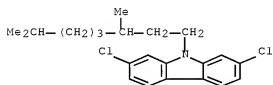
CMF C60 H80 Br2 N2 O



CM 3

CRN 660394-00-3

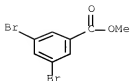
CMF C22 H27 Cl2 N



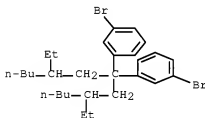
CM 4

CRN 51329-15-8

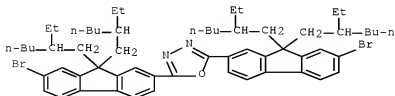
CMF C8 H6 Br2 O2



IT 660394-03-6DP, Ir complex  
 (Pt, Ir, and Al complex with fluorene, fluorenyloxidiazole, and  
 octylcarbazole copolymer for)  
 RN 660394-03-6 HCAPLUS  
 CN Benzoic acid, 3,5-dibromo-, methyl ester, polymer with  
 2,5-bis[7-bromo-9,9-bis(2-ethylhexyl)-9H-fluoren-2-yl]-1,3,4-  
 oxadiazole, 2,7-dichloro-9-(3,7-dimethyloctyl)-9H-carbazole and  
 1,1'-[3-ethyl-1-(2-ethylhexyl)heptylidene]bis[3-bromobenzene] (9CI)  
 (CA INDEX NAME)  
 CM 1  
 CRN 660394-02-5  
 CMF C29 H42 Br2

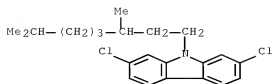


CM 2  
 CRN 660394-01-4  
 CMF C60 H80 Br2 N2 O



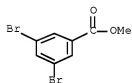
CM 3

CRN 660394-00-3  
CMF C22 H27 Cl2 N



CM 4

CRN 51329-15-8  
CMF C8 H6 Br2 O2



IC ICM C09K011-06  
ICS H05B033-14; H01L051-20; H01L051-30; C08G061-02; C08G061-12  
CC 37-3 (Plastics Manufacture and Processing)  
Section cross-reference(s): 73, 76  
ST electroluminescent device conjugated polymer metal complex  
IT Electroluminescent devices  
(Pt, Ir, and Al complex with fluorene, fluorenyloxidiazole, and  
octylcarbazole copolymer for)  
IT 660393-98-6P 660393-99-7P 660394-03-6P  
(Pt, Ir, and Al complex with fluorene, fluorenyloxidiazole, and  
octylcarbazole copolymer for)  
IT 660393-99-7DP, fluorenyloxidiazole copolymer complex  
660394-03-6DP, Ir complex  
(Pt, Ir, and Al complex with fluorene, fluorenyloxidiazole, and  
octylcarbazole copolymer for)

L44 ANSWER 12 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2004:20778 HCAPLUS Full-text

DOCUMENT NUMBER: 140:67441

TITLE: Phosphors and production process,  
luminescent composites, organic  
electroluminescent devices and production  
method

INVENTOR(S): Sakakibara, Mitsuhiro; Yasuda, Hiroyuki; Eriyama,  
Yuichi

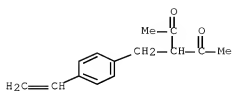
PATENT ASSIGNEE(S): Jsr Corporation, Japan

SOURCE: PCT Int. Appl., 36 pp.



CRN 59990-73-7

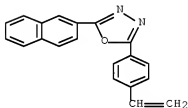
CMF C14 H16 O2



CM 2

CRN 21464-06-2

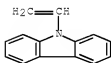
CMF C20 H14 N2 O



CM 3

CRN 1484-13-5

CMF C14 H11 N



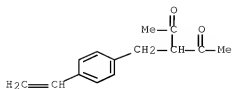
RN 639458-38-1 HCAPLUS

CN 2,4-Pentanedione, 3-[(4-ethenylphenyl)methyl]-, polymer with  
 2-[1,1'-biphenyl]-4-yl-5-(4-ethenylphenyl)-1,3,4-oxadiazole and  
 9-ethenyl-9H-carbazole (9CI) (CA INDEX NAME)

CM 1

CRN 59990-73-7

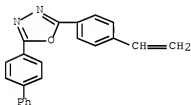
CMF C14 H16 O2



CM 2

CRN 19430-49-0

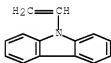
CMF C22 H16 N2 O



CM 3

CRN 1484-13-5

CMF C14 H11 N



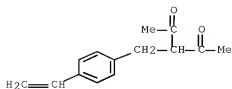
RN 639458-40-5 HCAPLUS

CN 2,4-Pentanedione, 3-[(4-ethenylphenyl)methyl]-, polymer with  
9-ethenyl-9H-carbazole and 2-(4-ethenylphenyl)-5-phenyl-1,3,4-  
oxadiazole (9CI) (CA INDEX NAME)

CM 1

CRN 59990-73-7

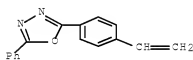
CMF C14 H16 O2



CM 2

CRN 17252-75-4

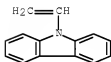
CMF C16 H12 N2 O



CM 3

CRN 1484-13-5

CMF C14 H11 N



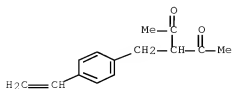
RN 639458-41-6 HCAPLUS

CN 2,4-Pentanedione, 3-[(4-ethenylphenyl)methyl]-, polymer with  
 9-(4-ethenylphenyl)-9H-carbazole and 2-(4-ethenylphenyl)-5-phenyl-  
 1,3,4-oxadiazole (9CI) (CA INDEX NAME)

CM 1

CRN 59990-73-7

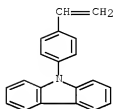
CMF C14 H16 O2



CM 2

CRN 52913-19-6

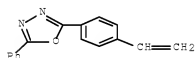
CMF C20 H15 N



CM 3

CRN 17252-75-4

CMF C16 H12 N2 O



IT 639456-37-0 639458-38-1 639456-40-5

639458-41-6

(phosphors and production process, luminescent composites,  
organic electroluminescent devices and production  
method)

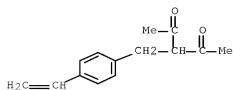
RN 639458-37-0 HCAPLUS

CN 2,4-Pentanedione, 3-[(4-ethenylphenyl)methyl]-, polymer with  
9-ethenyl-9H-carbazole and 2-(4-ethenylphenyl)-5-(2-naphthalenyl)-  
1,3,4-oxadiazole (9CI) (CA INDEX NAME)

CM 1

CRN 59990-73-7

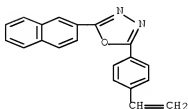
CMF C14 H16 O2



CM 2

CRN 21464-06-2

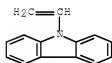
CMF C20 H14 N2 O



CM 3

CRN 1484-13-5

CMF C14 H11 N



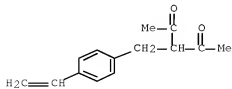
RN 639458-38-1 HCAPLUS

CN 2,4-Pentanedione, 3-[(4-ethenylphenyl)methyl]-, polymer with  
 2-[1,1'-biphenyl]-4-yl-5-(4-ethenylphenyl)-1,3,4-oxadiazole and  
 9-ethenyl-9H-carbazole (9CI) (CA INDEX NAME)

CM 1

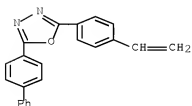
CRN 59990-73-7

CMF C14 H16 O2



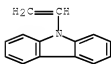
CM 2

CRN 19430-49-0  
 CMF C22 H16 N2 O



CM 3

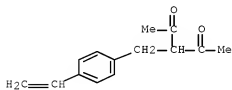
CRN 1484-13-5  
 CMF C14 H11 N



RN 639458-40-5 HCAPLUS  
 CN 2,4-Pentanedione, 3-[(4-ethenylphenyl)methyl]-, polymer with  
 9-ethenyl-9H-carbazole and 2-(4-ethenylphenyl)-5-phenyl-1,3,4-  
 oxadiazole (9CI) (CA INDEX NAME)

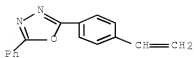
CM 1

CRN 59990-73-7  
 CMF C14 H16 O2



CM 2

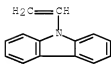
CRN 17252-75-4  
 CMF C16 H12 N2 O



CM 3

CRN 1484-13-5

CMF C14 H11 N



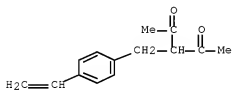
RN 639458-41-6 HCAPLUS

CN 2,4-Pentanedione, 3-[(4-ethenylphenyl)methyl]-, polymer with  
 9-(4-ethenylphenyl)-9H-carbazole and 2-(4-ethenylphenyl)-5-phenyl-  
 1,3,4-oxadiazole (9CI) (CA INDEX NAME)

CM 1

CRN 59990-73-7

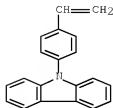
CMF C14 H16 O2



CM 2

CRN 52913-19-6

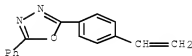
CMF C20 H15 N



CM 3

CRN 17252-75-4

CMF C16 H12 N2 O



IC ICM C09K011-06  
ICS C08F030-04; H05B033-14; H05B033-10

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

ST phosphor polymer electroluminescent device

IT Electroluminescent devices  
Phosphors  
(phosphors and production process, luminescent composites, organic electroluminescent devices and production method)

IT 7439-88-5D, Iridium, complexes with vinylcarbazole polymers 639458-35-8D, iridium complexes 639458-37-0D, iridium complexes 639458-38-1D, iridium complexes 639458-40-5D, iridium complexes 639458-41-6D, iridium complexes  
(phosphors and production process, luminescent composites, organic electroluminescent devices and production method)

IT 603109-48-4 632327-37-8 639458-35-8 639458-37-0 639456-38-1 639458-40-5 639456-41-6 639478-11-8 639478-13-0  
(phosphors and production process, luminescent composites, organic electroluminescent devices and production method)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L44 ANSWER 13 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2003:710908 HCAPLUS Full-text  
DOCUMENT NUMBER: 139:246515  
TITLE: Luminescent compositions containing iridium complexes and polymers having positive hole

transport property for electro-luminescent elements  
 INVENTOR(S): Sakakibara, Mitsuhiro; Eriyama, Yuichi; Yasuda, Hiroyuki  
 PATENT ASSIGNEE(S): JSR Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 19 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003253128	A	20030910	JP 2002-52608	20020228
			<--	
PRIORITY APPLN. INFO.:			JP 2002-52608	20020228
			<--	

OTHER SOURCE(S): MARPAT 139:246515  
 ED Entered STN: 10 Sep 2003  
 GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB Title composition for provide electro-luminescent element which emits blue light and possesses high luminous brightness, efficiency, and durability comprises  $\geq 1$  iridium complex compds. selected from compds. I (R1: alkyl; R2, R3: monovalent organic groups; a, b = 1-4), II (R1: alkyl; R4: H, hydrocarbyl; a, b, c = 1-4), and III (R1: alkyl; a, b = 1-4), and polymeric material having pos. hole transport property. Thus a composition comprising N-vinylcarbazole-2-phenyl-5-(4-vinyl-p-biphenyl)-1,3,4-oxadiazole copolymer 1 g and iridium complex 5 mg, which was prepared from iridium trichloride, 2-(4,6-difluorophenyl)-4-methylpyridine, and picolinic acid, was used for preparation of a organic electro-luminescent element, showing luminescent initial elec. potential 9 V, highest luminous brightness 3500 cd, energy efficiency 2 lm/W, luminous efficiency 7 cd/A, durability (half-value period index) 800, and blue light.

IT 596815-60-0P  
 (preparation and properties of luminous compns. containing iridium complexes and polymers having pos. hole transport property for electro-luminescent elements)

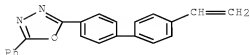
RN 596815-60-0 HCAPLUS

CN 9H-Carbazole, 9-ethenyl-, polymer with 2-(4'-ethenyl[1,1'-biphenyl]-4-yl)-5-phenyl-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

CM 1

CRN 136180-42-2

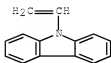
CMF C22 H16 N2 O



CM 2

CRN 1484-13-5

CMF C14 H11 N



- IC ICM C08L101-00  
ICS C08K005-3432; C08L039-04; C09K011-06; H05B033-14; C07F015-00
- CC 37-6 (Plastics Manufacture and Processing)  
Section cross-reference(s): 73, 76
- ST iridium complex hole transport polymer compn electro  
luminescence element
- IT Luminescence, electroluminescence  
(blue; preparation and properties of luminous compns. containing  
iridium complexes and polymers having pos. hole transport property  
for electro-luminescent elements)
- IT Luminescent substances  
(electroluminescent; preparation and properties of  
luminous compns. containing iridium complexes and polymers  
having pos. hole transport property for electro-  
luminescent elements)
- IT Electroluminescent devices  
(preparation and properties of luminous compns. containing iridium  
complexes and polymers having pos. hole transport property for  
electro-luminescent elements)
- IT 25067-59-8P, N-Vinylcarbazole homopolymer 358974-63-7P  
596815-60-0P 596823-68-6P 596823-69-7P  
(preparation and properties of luminous compns. containing iridium  
complexes and polymers having pos. hole transport property for  
electro-luminescent elements)
- IT 98-98-6, Picolinic acid 10025-83-9, Iridium trichloride  
15635-87-7, Iridium tris(acetylacetonate) 391250-41-2,  
2-(4,6-Difluorophenyl)-4-methylpyridine 596815-61-1  
(starting material; preparation and properties of luminous  
compns. containing iridium complexes and polymers having pos. hole  
transport property for electro-luminescent  
elements)

L44 ANSWER 14 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2003:707041 HCAPLUS Full-text

DOCUMENT NUMBER: 139:246512

TITLE: Luminous compositions containing iridium  
complexes and polymers having positive hole  
transport property for electro-  
luminescent elementsINVENTOR(S): Sakakibara, Mitsuhiko; Eriyama, Yuichi; Yasuda,  
Hiroyuki

PATENT ASSIGNEE(S): JSR Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 23 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003253145	A	20030910	JP 2002-52610	20020228
			<--	
PRIORITY APPLN. INFO.:			JP 2002-52610	20020228
			<--	

OTHER SOURCE(S): MARPAT 139:246512

ED Entered STN: 10 Sep 2003

AB Title composition for provide electro-luminescent element which emits red light and possesses high luminous brightness, efficiency, and durability comprises  $\geq 1$  iridium complexes selected from phenylquinoline-iridium, phenylquinoline-picolinic acid-iridium, phenylquinoline-diketone-iridium, naphthylpyridine-diketone-iridium, naphthylpyridine-picolinic acid-iridium, naphthylpyridine-diketone-iridium, phenylpyridine-diketone-iridium, phenylpyridine-picolinic acid-iridium, and phenylpyridine-iridium type complexes, and polymeric material having pos. hole transport property. Thus a composition comprising N-vinylcarbazole-2-phenyl-5-(4-vinyl-p-biphenyl)-1,3,4-oxadiazole copolymer 1 g and iridium complex 5 mg, which was prepared from iridium trichloride, 2-phenylquinoline, and sodium acetylacetonate, was used for preparation of a organic electro-luminescent element, showing luminescent initial elec. potential 8 V, highest luminous brightness 10,000 cd, energy efficiency 1.3 lm/W, luminous efficiency 3 cd/A, durability (half-value period index) 1000, and red light.

IT 596815-60-0P

(preparation and properties of luminous compns. containing iridium complexes and polymers having pos. hole transport property for electro-luminescent elements)

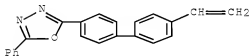
RN 596815-60-0 HCAPLUS

CN 9H-Carbazole, 9-ethenyl-, polymer with 2-(4'-ethenyl[1,1'-biphenyl]-4-yl)-5-phenyl-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

CM 1

CRN 136180-42-2

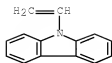
CMF C22 H16 N2 O



CM 2

CRN 1484-13-5

CMF C14 H11 N



- IC ICM C08L101-12  
ICS C08K005-3432; C09K011-06; H05B033-14; C07F015-00
- CC 37-6 (Plastics Manufacture and Processing)  
Section cross-reference(s): 73, 76
- ST iridium complex hole transport polymer compn electro  
luminescence element
- IT Luminescent substances  
(electroluminescent; preparation and properties of  
luminous compns. containing iridium complexes and polymers  
having pos. hole transport property for electro-  
luminescent elements)
- IT Electroluminescent devices  
(preparation and properties of luminous compns. containing iridium  
complexes and polymers having pos. hole transport property for  
electro-luminescent elements)
- IT Luminescence, electroluminescence  
(red; preparation and properties of luminous compns. containing  
iridium complexes and polymers having pos. hole transport property  
for electro-luminescent elements)
- IT 25067-59-8P, N-Vinylcarbazole homopolymer 337526-95-1P  
358974-63-7P 596815-60-0P 596824-78-1P 596824-80-5P  
596824-82-7P  
(preparation and properties of luminous compns. containing iridium  
complexes and polymers having pos. hole transport property for  
electro-luminescent elements)
- IT 98-98-6, Picolinic acid 612-96-4, 2-Phenylquinoline 4282-47-7,  
2-(p-Nitrophenyl)pyridine 10025-83-9, Iridium trichloride  
15435-71-9, Sodium acetylacetonate, reactions 15635-87-7, Iridium  
tris(acetylacetonate) 66318-88-5, 2-(2-Naphthyl)pyridine  
93324-66-4  
(starting material; preparation and properties of luminous  
compns. containing iridium complexes and polymers having pos. hole  
transport property for electro-luminescent  
elements)

L44 ANSWER 15 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2003:707038 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 139:252598

TITLE: Illuminating compositions for organic  
electroluminescent materials

INVENTOR(S): Sakakibara, Mitsuhiro; Eriyama, Yuichi; Yasuda,  
Hiroyuki

PATENT ASSIGNEE(S): JSR Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 16 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2003253129 A 20030910 JP 2002-52609 20020228  
 <--  
 PRIORITY APPLN. INFO.: JP 2002-52609 20020228  
 <--

OTHER SOURCE(S): MARPAT 139:252598

ED Entered SIN: 10 Sep 2003

AB Green color-illuminating compns. contain Ir complexes and pos.-hole-transporting polymers. Thus, a composition contained 5 mg phosphorescent agent prepared from Ir acetylacetonate and 2-[4-(2,6-xylyl)phenyl]pyridine and 1 g 2-phenyl-5-(p-vinylbiphenyl)-1,3,4-oxadiazole-N-vinylcarbazole copolymer.

IT 596815-60-0P  
 (illuminating compns. containing iridium complexes and pos.-hole-transporting polymers for organic electroluminescent materials)

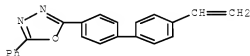
RN 596815-60-0 HCAPLUS

CN 9H-Carbazole, 9-ethenyl-, polymer with 2-(4'-ethenyl[1,1'-biphenyl]-4-yl)-5-phenyl-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

CM 1

CRN 136180-42-2

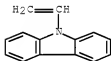
CMF C22 H16 N2 O



CM 2

CRN 1484-13-5

CMF C14 H11 N



IC ICM C08L101-00  
 ICS C08K005-3432; C08L039-04; C09K011-06; H05B033-14; C07F015-00  
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 Section cross-reference(s): 78  
 ST iridium complex polymer electroluminescent material  
 IT Luminescent substances  
 (electroluminescent; illuminating compns. containing iridium complexes and pos.-hole-transporting polymers for organic electroluminescent materials)  
 IT Phosphorescent substances  
 (illuminating compns. containing iridium complexes and

- pos.-hole-transporting polymers for organic electroluminescent materials)
- IT Coordination compounds  
(illuminating compns. containing iridium complexes and pos.-hole-transporting polymers for organic electroluminescent materials)
- IT Polymers, preparation  
(pos.-hole-transporting; illuminating compns. containing iridium complexes and pos.-hole-transporting polymers for organic electroluminescent materials)
- IT 25067-59-8P, Poly(N-vinylcarbazole) 358974-63-7P  
596815-60-0P  
(illuminating compns. containing iridium complexes and pos.-hole-transporting polymers for organic electroluminescent materials)
- IT 597533-61-4P  
(illuminating compns. containing iridium complexes and pos.-hole-transporting polymers for organic electroluminescent materials)
- IT 597533-58-9P 597533-62-5P  
(illuminating compns. containing iridium complexes and pos.-hole-transporting polymers for organic electroluminescent materials)
- IT 10025-83-9, Iridium trichloride 15635-87-7, Iridium acetylacetonate  
597533-59-0 597533-60-3  
(illuminating compns. containing iridium complexes and pos.-hole-transporting polymers for organic electroluminescent materials)

L44 ANSWER 16 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER:

2003:696978 HCAPLUS [Full-text](#)

DOCUMENT NUMBER:

139:237465

TITLE:

Phosphors, production process and phosphorescent composites for inkjet process for electroluminescent devices

INVENTOR(S):

Eriyama, Yuichi; Yasuda, Hiroyuki; Sakakibara, Mitsuhiro

PATENT ASSIGNEE(S):

JSR Corporation, Japan

SOURCE:

PCT Int. Appl., 29 pp.

CODEN: PIXXD2

DOCUMENT TYPE:

Patent

LANGUAGE:

Japanese

FAMILY ACC. NUM. COUNT:

1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003072681	A1	20030904	WO 2003-JP2207	20030227
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W: KR, US				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU,				
IE, IT, LU, MC, NL, PT, SE, SI, SK, TR				
JP 2003253257	A	20030910	JP 2002-54227	20020228
<--				
EP 1484381	A1	20041208	EP 2003-743043	20030227
<--				
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,				
PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
US 20040106006	A1	20040603	US 2003-474347	20031008
<--				

PRIORITY APPLN. INFO.:

JP 2002-54227

A 20020228

&lt;--

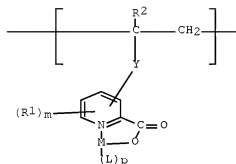
WO 2003-JP2207

W 20030227

&lt;--

ED Entered STN: 05 Sep 2003

GI



AB The invention refers to phosphors containing I [M = di- to tetra-valent metal atom; R1 = H or monovalent halo, alkyl or aryl; R2 = H or methyl; Y = single bond or carbonyl-containing divalent organic group; L = organic ligand; m = 1 - 3; p = 1 - 4], suitable for use in inkjet processes to form electroluminescent devices, and having mol. weight 1,000 to 500,000, its production process and phosphorescent materials containing the phosphors.

IT 593287-45-7DE, iridium complexes

(phosphors, production process and phosphorescent composites for inkjet process for electroluminescent devices)

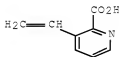
RN 593287-45-7 HCAPLUS

CN 2-Pyridinecarboxylic acid, 3-ethenyl-, polymer with 2-[4-(1,1-dimethylethyl)phenyl]-5-(4'-ethenyl[1,1'-biphenyl]-4-yl)-1,3,4-oxadiazole and 9-ethenyl-9H-carbazole (9CI) (CA INDEX NAME)

CM 1

CRN 593287-44-6

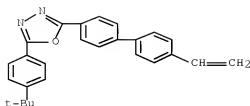
CMF C8 H7 N O2



CM 2

CRN 85884-56-6

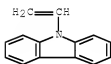
CMF C26 H24 N2 O



CM 3

CRN 1484-13-5

CMF C14 H11 N

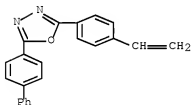


- IC ICM C09K011-06  
ICS H05B033-14; C08F008-42
- CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
- ST phosphor inkjet printing electroluminescent device
- IT Electroluminescent devices  
Ink-jet printing  
Phosphors  
(phosphors, production process and phosphorescent composites for inkjet process for electroluminescent devices)
- IT 1008-89-5DP, 2-Phenylpyridine, iridium complexes, chloro, dimers, polymer derivs. 7439-88-5DP, Iridium, complexes with phenylpyridine, chloro, dimers, polymer derivs. 441072-22-6DP, iridium complexes, chloro, dimers, polymer derivs.  
(phosphors, production process and phosphorescent composites for inkjet process for electroluminescent devices)
- IT 593287-45-7DP, iridium complexes  
(phosphors, production process and phosphorescent composites for inkjet process for electroluminescent devices)
- IT 874-24-8, 3-Hydroxy picolinic acid 1493-13-6, Trifluoromethanesulfonic acid 7486-35-3, Tributylvinyl tin  
(phosphors, production process and phosphorescent composites for inkjet process for electroluminescent devices)
- IT 62733-99-7P 157865-84-4P 174681-86-8P 593287-44-6P  
(phosphors, production process and phosphorescent composites for inkjet process for electroluminescent devices)
- REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

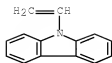
ACCESSION NUMBER: 2003:470599 HCAPLUS Full-text  
 DOCUMENT NUMBER: 139:44010  
 TITLE: Electroluminescent polymer compositions  
 for organic electroluminescent devices  
 of high efficiency and long service life  
 INVENTOR(S): Yasuda, Hiroyuki; Sakakibara, Mitsuhiro  
 PATENT ASSIGNEE(S): Jsr Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----		-----	-----	-----
JP 2003171524	A	20030620	JP 2001-374753	20011207
			<--	
PRIORITY APPLN. INFO.:			JP 2001-374753	20011207
			<--	

ED Entered STN: 20 Jun 2003  
 AB The comps. comprise (A) copolymers consisting of 50-99 mol% aromatic tertiary amine unit and 1-50 mol% oxadiazole unit and (B) tetraphenylbutadiene. The component A may be replaced with (A') (50-99):(1-50) (mol%) blends of hole-transporting aromatic tertiary amine polymers and electron-transporting oxadiazole polymers or with (A'') hole-transporting aromatic tertiary amine polymers and oxadiazole derivs.  
 IT 525561-33-5  
 (emission layers; electroluminescent polymer comps.  
 containing tetraphenylbutadiene for high-efficiency and long-life LED)  
 RN 525561-33-5 HCAPLUS  
 CN 9H-Carbazole, 9-ethenyl-, polymer with 2-[1,1'-biphenyl]-4-yl-5-(4-ethenylphenyl)-1,3,4-oxadiazole (9CI) (CA INDEX NAME)  
 CM 1  
 CRN 19430-49-0  
 CMF C22 H16 N2 O



CM 2  
 CRN 1484-13-5  
 CMF C14 H11 N



- IC ICM C08L039-04  
ICS C08K005-01; C08K005-353; C08L025-18; C09K011-06; H05B033-14;  
H05B033-22
- CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
Section cross-reference(s): 38
- ST biphenylvinylphenyloxadiazole vinylcarbazole  
electroluminescent polymer tetraphenylbutadiene LED;  
durability efficiency electroluminescent device  
vinylcarbazole polymer
- IT luminescent substances  
(electroluminescent; electroluminescent polymer  
compns. containing tetraphenylbutadiene for high-efficiency and  
long-life LED)
- IT Polymer blends  
(emission layers; electroluminescent polymer compns.  
containing tetraphenylbutadiene for high-efficiency and long-life LED)
- IT Electroluminescent devices  
(organic; electroluminescent polymer compns. containing  
tetraphenylbutadiene for high-efficiency and long-life LED)
- IT 19430-49-0 525561-33-5  
(emission layers; electroluminescent polymer compns.  
containing tetraphenylbutadiene for high-efficiency and long-life LED)
- IT 27236-84-6, Tetraphenylbutadiene  
(emission layers; electroluminescent polymer compns.  
containing tetraphenylbutadiene for high-efficiency and long-life LED)

L44 ANSWER 18 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2003:374952 HCAPLUS Full-text

DOCUMENT NUMBER: 139:214801

TITLE: Novel silicon-based alternating copolymers:  
Synthesis, photophysical properties, and tunable  
EL colors

AUTHOR(S): Kim, Hwan Kyu; Paik, Kyung Lim; Baek, Nam Seob;  
Lee, Youngil; Yoshino, Katsumi

CORPORATE SOURCE: S. Korea

SOURCE: Macromolecular Symposia (2003), 192(7th  
Pacific Polymer Conference, 2001), 135-149  
CODEN: MSYNEC; ISSN: 1022-1360

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 16 May 2003

AB Silicon-based alternating copolymers for tunable electroluminescent (EL) colors were synthesized by the Heck reaction of alkyl/aryl-substituted distyrylsilanes with aromatic or heteroarom. dibromides and their thermal, photophys. and electroluminescent properties were studied. Most of the polymers exhibited a blue-green EL color at an operating voltage of <12 V. Unusually, a white EL color was observed from an EL device based on the polymer (SiPhPVK) prepared from diphenyldistyrylsilane and a dibromocarbazole derivative. From photophys. studies and the time-resolved PL spectroscopies, it might be attributed to the formation of stabilized excited state in

SiPhPVK. Furthermore, silicon-based alternating copolymers containing electron transporting oxadiazole units in the main chain were synthesized in order to reduce the operating voltage of their LED with increasing the electron affinity of the main chain. The photophys. and electroluminescent properties of the polymers were also studied.

IT #34452-96-7P

(synthesis, photophys. properties, and tunable electroluminescent colors of silicon-based alternating polymers synthesized from alkyl/aryl-substituted distyrylsilanes and aromatic or heteroarom. dibromides)

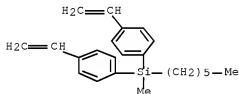
RN 434452-96-7 HCAPLUS

CN 9H-Carbazole, 3,6-dibromo-9-(2-ethylhexyl)-, polymer with 2,5-bis(4-bromophenyl)-1,3,4-oxadiazole and bis(4-ethenylphenyl)hexylmethylsilane (9CI) (CA INDEX NAME)

CM 1

CRN 247168-88-3

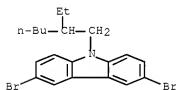
CMF C23 H30 Si



CM 2

CRN 173063-52-0

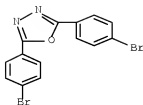
CMF C20 H23 Br2 N



CM 3

CRN 19542-05-3

CMF C14 H8 Br2 N2 O



CC 35-5 (Chemistry of Synthetic High Polymers)

IT Polymerization  
(of alkyl/aryl-substituted distyrylsilanes with aromatic or heteroarom. dibromides in synthesis of alternating copolymers with tunable electroluminescent colors)

IT Polycarbosilanes  
(polyarylenealkenylene-; synthesis, photophys. properties, and tunable electroluminescent colors of silicon-based alternating polymers synthesized from alkyl/aryl-substituted distyrylsilanes and aromatic or heteroarom. dibromides)

IT Poly(arylenealkenylenes)  
(polycarbosilane-; synthesis, photophys. properties, and tunable electroluminescent colors of silicon-based alternating polymers synthesized from alkyl/aryl-substituted distyrylsilanes and aromatic or heteroarom. dibromides)

IT Glass transition temperature

Luminescence  
Luminescence, electroluminescence  
(synthesis, photophys. properties, and tunable electroluminescent colors of silicon-based alternating polymers synthesized from alkyl/aryl-substituted distyrylsilanes and aromatic or heteroarom. dibromides)

IT Electroluminescent devices  
(synthesis, photophys. properties, and tunable electroluminescent colors of silicon-based alternating polymers synthesized from alkyl/aryl-substituted distyrylsilanes and aromatic or heteroarom. dibromides for use in)

IT 189575-99-3P 189576-01-0P 201745-60-0P 247168-89-4P  
247168-90-7P 247168-91-8P 247168-92-9P 321896-12-2P  
321896-13-3P 321896-14-4P 321896-15-5P 321896-16-6P  
321896-17-7P 321896-18-8P 321896-19-9P 321896-20-2P  
321896-21-3P 321896-22-4P 321896-23-5P 321896-24-6P  
321896-25-7P 322725-97-3P 434452-96-7P  
434452-96-7P  
(synthesis, photophys. properties, and tunable electroluminescent colors of silicon-based alternating polymers synthesized from alkyl/aryl-substituted distyrylsilanes and aromatic or heteroarom. dibromides)

REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L44 ANSWER 19 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2003:373899 HCAPLUS Full-text

DOCUMENT NUMBER: 138:392822

TITLE: Light emitting polymer composition, and organic electroluminescence device and production

INVENTOR(S): process thereof  
Sakakibara, Mitsuhiro; Yasuda, Hiroyuki; Negoro,  
Yasunori  
PATENT ASSIGNEE(S): JSR Corporation, Japan  
SOURCE: Eur. Pat. Appl., 20 pp.  
CODEN: EPXXDW  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1311138	A1	20030514	EP 2002-24822	20021107
EP 1311138	B1	20040929	<--	
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
JP 2003221484	A	20030805	JP 2002-314421	20021029
			<--	
JP 3896947	B2	20070322		
US 20030116788	A1	20030626	US 2002-290370	20021108
			<--	
US 6872474	B2	20050329		
PRIORITY APPLN. INFO.:			JP 2001-344253	A 20011109
			<--	
			JP 2001-344254	A 20011109
			<--	

OTHER SOURCE(S): MARPAT 138:392822

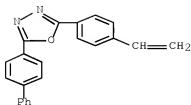
ED Entered STN: 16 May 2003

AB A light emitting polymer composition is described comprising a polymer component and a phosphorescent agent contained in the polymer component, wherein the polymer component is composed of a hole transporting component formed from 50 to 99 mol% of a hole transporting monomer and an electron transporting component formed from 50 to 1 mol% of an electron transporting monomer. The polymer component is a copolymer composed of 50 to 99 mol% of structural units derived from the hole transporting monomer and 50 to 1 mol% of structural units derived from the electron transporting monomer, or is composed of a hole transporting polymer obtained from the hole transporting monomer and an electron transporting polymer obtained from the electron transporting monomer, and a proportion of the hole transporting polymer to the electron transporting polymer is 50:50 to 99:1 in terms of a molar ratio reduced to the monomers. An organic electroluminescence device is also described comprising a functional organic material layer which functions as a light emitting layer or hole transport layer and is formed by a light emitting polymer composition comprising the polymer component and the phosphorescent agent contained in the polymer component. A method of fabricating the organic electroluminescence device is also described.

IT 19430-49-0  
(light emitting polymer composition, and organic  
electroluminescence device and production process thereof)

RN 19430-49-0 HCAPLUS

CN 1,3,4-Oxadiazole, 2-[1,1'-biphenyl]-4-yl-5-(4-ethenylphenyl)- (CA  
INDEX NAME)

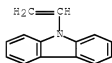


IT 25067-59-8P, N-Vinylcarbazole polymer 292624-58-9P  
 525561-33-5P  
 (phosphorescent agent; light emitting polymer  
 composition, and organic electroluminescence device and production  
 process thereof)  
 RN 25067-59-8 HCAPLUS  
 CN 9H-Carbazole, 9-ethenyl-, homopolymer (CA INDEX NAME)

CM 1

CRN 1484-13-5

CMF C14 H11 N

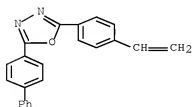


RN 292624-58-9 HCAPLUS  
 CN 1,3,4-Oxadiazole, 2-[1,1'-biphenyl]-4-yl-5-(4-ethenylphenyl)-,  
 homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 19430-49-0

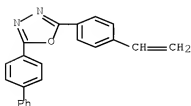
CMF C22 H16 N2 O



RN 525561-33-5 HCAPLUS  
 CN 9H-Carbazole, 9-ethenyl-, polymer with 2-[1,1'-biphenyl]-4-yl-5-(4-  
 ethenylphenyl)-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

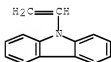
CM 1

CRN 19430-49-0  
 CMF C22 H16 N2 O



CM 2

CRN 1484-13-5  
 CMF C14 H11 N



- IC ICM H05B033-14  
 ICS C09K011-06
- CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
 Section cross-reference(s): 29, 38, 76
- ST org electroluminescence phosphorescent iridium complex  
 light emitting device polymer
- IT Electroluminescent devices  
 Semiconductor device fabrication  
 (light emitting polymer composition, and organic electroluminescence device and production process thereof)
- IT 50926-11-9, Indium tin oxide 126213-51-2, PEDOT  
 (light emitting device; light emitting polymer composition, and organic electroluminescence device and production process thereof)
- IT 1008-89-5, 2-Phenylpyridine 1484-13-5, N-Vinylcarbazole 19430-49-0 97894-10-5  
 (light emitting polymer composition, and organic electroluminescence device and production process thereof)
- IT 7440-04-2D, Osmium, complex 7440-06-4D, Platinum, complex  
 (phosphorescent agent; light emitting polymer composition, and organic electroluminescence device and production process thereof)
- IT 94928-86-6P  
 (phosphorescent agent; light emitting polymer composition, and organic electroluminescence device and production process thereof)
- IT 25667-59-8P, N-Vinylcarbazole polymer 292624-58-9P

525561-33-5P

(phosphorescent agent; light emitting polymer composition, and organic electroluminescence device and production process thereof)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L44 ANSWER 20 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2003:353898 HCAPLUS Full-text

DOCUMENT NUMBER: 138:376103

TITLE: Electroluminescent device with liquid crystal copolymer

INVENTOR(S): Mochizuki, Hirotaka; Ikeda, Tomiki

PATENT ASSIGNEE(S): Kokusaki Kiban Zairyo Kenkyusho K. K., Japan; JSR Ltd.

SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2003133073	A	20030509	JP 2001-332087	20011030

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PRIORITY APPLN. INFO.:	JP 2001-332087	20011030
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ED Entered STN: 09 May 2003

AB The invention refers to an electroluminescent device comprising a copolymer of a liquid crystal monomer having a liquid crystal side chain, and a functional monomer 2-[CH<sub>2</sub>:C(R<sub>1</sub>)CO<sub>2</sub>(CH<sub>2</sub>)mO-p-C<sub>6</sub>H<sub>4</sub>-p-C<sub>6</sub>H<sub>4</sub>]-5-Y-1,3,4-oxadiazole- [R<sub>1</sub> = H, Me; Y = -p-C<sub>6</sub>H<sub>4</sub>N(CH<sub>3</sub>)<sub>2</sub>, -p-C<sub>6</sub>H<sub>4</sub>N(Ph)<sub>2</sub>, 3-(N-methylcarbazolyl); 3-(N-phenylcarbazolyl); m = 2 - 11].

IT 521971-85-7P 521971-90-4P

(electroluminescent device with liquid crystal copolymer)

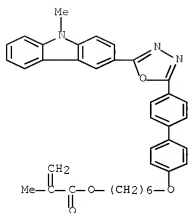
RN 521971-85-7 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 6-[[4'-cyano[1,1'-biphenyl]-4-yl]oxy]hexyl ester, polymer with 6-[[4'-[5-(9-methyl-9H-carbazol-3-yl)-1,3,4-oxadiazol-2-yl][1,1'-biphenyl]-4-yl]oxy]hexyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 521971-77-7

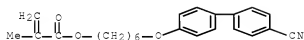
CMF C37 H35 N3 O4



CM 2

CRN 117318-91-9

CMF C23 H25 N O3



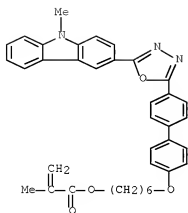
RN 521971-90-4 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 6-[(4'-cyano[1,1'-biphenyl]-4-yl)oxy]hexyl ester, polymer with 6-[[4'-[5-[4-(diphenylamino)phenyl]-1,3,4-oxadiazol-2-yl][1,1'-biphenyl]-4-yl]oxy]hexyl 2-methyl-2-propenoate and 6-[[4'-[5-(9-methyl-9H-carbazol-3-yl)-1,3,4-oxadiazol-2-yl][1,1'-biphenyl]-4-yl]oxy]hexyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 521971-77-7

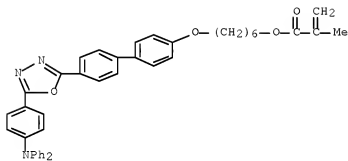
CMF C37 H35 N3 O4



CM 2

CRN 521971-76-6

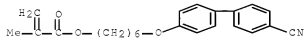
CMF C42 H39 N3 O4



CM 3

CRN 117318-91-9

CMF C23 H25 N O3



IC ICM H05B033-14

ICS C08F220-36; C09K011-06; C07C255-54

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

ST electroluminescent device liq crystal polymer

IT Electroluminescent devices  
Liquid crystals, polymeric  
(electroluminescent device with liquid crystal copolymer)

IT 521971-84-6P 521971-85-7P 521971-87-9P 521971-88-0P  
521971-89-1P 521971-90-4P  
(electroluminescent device with liquid crystal copolymer)

IT 79-41-4, Methacrylic acid, reactions 920-46-7, Methacrylic acid  
chloride 1611-56-9, 11-Bromo-1-undecanol 4286-55-9,  
6-Bromo-1-hexanol 19812-93-2, 4-Cyano-4'-hydroxybiphenyl  
33940-27-1 50816-19-8, 8-Bromo-1-octanol 51449-84-4 125775-57-7  
(electroluminescent device with liquid crystal copolymer)

IT 47304-16-5P, 4'-(6-Hydroxyhexyloxy)biphenyl-4-carboxylic acid  
111232-16-7P 117318-91-9P 141085-16-7P 521971-76-6P  
521971-77-7P 521971-78-8P 521971-79-9P 521971-81-3P  
(electroluminescent device with liquid crystal copolymer)

L44 ANSWER 21 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2003:305262 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 139:37137

TITLE: A Novel Class of Photo- and Electroactive Polymers  
Containing Oxadiazole and Amine Moieties in a Side  
Chain

AUTHOR(S): Mochizuki, Hiroyuki; Hasui, Takahiro; Kawamoto,  
Masuki; Ikeda, Tomiki; Adachi, Chihaya; Taniguchi,  
Yoshio; Shirota, Yasuhiko

CORPORATE SOURCE: Chemical Resources Laboratory, Tokyo Institute of  
Technology, Yokohama, Midori-ku, 226-8503, Japan

SOURCE: Macromolecules (2003), 36(10), 3457-3464

CODEN: MAMOBX; ISSN: 0024-9297

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 22 Apr 2003

AB A new class of photo- and electroactive polymer materials showing an liquid-  
crystalline (LC) phase were designed and synthesized: four kinds of polymers  
with both oxadiazole and arylamine moieties as carrier-transporting groups in  
the side chain. Among them, the polymers with a dimethylamine and a  
methylcarbazole moiety show LC phases. Furthermore, all the polymers emitted  
strong blue fluorescence, and their fluorescent quantum yields were over 0.6.  
The aligned sample of the polymer with the carbazole moiety emitted polarized  
fluorescence at room temperature One-layer type electroluminescent (EL)  
devices were fabricated by using the polymer with a triphenylamine moiety,  
which exhibited the highest quantum yield (.apprx.0.82), and found to emit the  
EL emission at blue region.

IT 540473-66-3P 540473-67-4P  
(photo- and electroactive polymers containing oxadiazole and amine  
moieties in side chain)

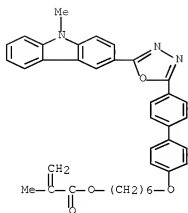
RN 540473-66-3 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 6-[[4'-(5-(9-methyl-9H-carbazol-3-yl)-  
1,3,4-oxadiazol-2-yl)][1,1'-biphenyl]-4-yl]oxy]hexyl ester, homopolymer  
(9CI) (CA INDEX NAME)

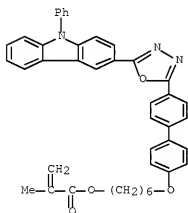
CM 1

CRN 521971-77-7

CMF C37 H35 N3 O4



RN 540473-67-4 HCAPLUS  
 CN 2-Propenoic acid, 2-methyl-, 6-[[4'-(5-(9-phenyl-9H-carbazol-3-yl)-1,3,4-oxadiazol-2-yl)[1,1'-biphenyl]-4-yl]oxy]hexyl ester, homopolymer (9CI) (CA INDEX NAME)  
 CM 1  
 CRN 540473-61-8  
 CMF C42 H37 N3 O4



CC 37-3 (Plastics Manufacture and Processing)  
 IT Luminescence, electroluminescence  
 (photo- and electroactive polymers containing oxadiazole and amine moieties in side chain)  
 IT 538366-53-9P 540473-62-9P 540473-63-0P 540473-64-1P  
 540473-65-2P 540473-66-3P 540473-67-4P  
 (photo- and electroactive polymers containing oxadiazole and amine moieties in side chain)  
 REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L44 ANSWER 22 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2002:958655 HCAPLUS Full-text  
 DOCUMENT NUMBER: 138:40293  
 TITLE: Hetero aromatic ring-containing copolymers for  
 luminous material  
 INVENTOR(S): Taguchi, Toshiki  
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 18 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002363227	A	20021218	JP 2002-96637	20020329
			<--	
US 20030082405	A1	20030501	US 2002-114261	20020403
			<--	
US 6803124	B2	20041012		
PRIORITY APPLN. INFO.:			JP 2001-104579	A 20010403
			<--	

ED Entered STN: 18 Dec 2002

AB Luminous material with high brightness, efficiency, and durability contains, at least one type of new polymers represented by: (Am)p-(Bn)q-(Ck)r, in which A is a monomer unit containing aromatic hetero condensed ring derivative, such as pyrrole, thiophene, and furan; B is a monomer unit including hetero ring derivative with >2 hetero atoms in one ring, such as imidazole, pyrazole, and pyridazine; C is monomer unit with structure other than A and B; m, n is integer >1, and k is integer >0; p, q, and r are mol amount ratio of the three monomer units (p + q + r = 100%), p, q = 1-99 % and r = 0-98 %; at least one of the monomer units has ballast substitute with more than four carbon. For the luminous material, there is ≥1 above-described polymer-containing layer between cathode and anode producing light from dopant excimers. Thus, poly[(3,4-ethylenedioxy)-2,5-thiophene] dispersion containing polystyrenesulfonic acid was coated on a transparent substrate to form a substrate layer, luminous layer composed of poly(N-vinylcarbazole) 2-(4'-tert-butylphenyl)-5-(4''-(phenyl)phenyl)-1,3,4-oxadiazole (PBT) and coumarin-6 in 1,2-dichloroethane was then coated on the substrate layer prepared above, followed by codepositing Mg:Ag = 10:1 on the polymeric coating through a mask in evaporation equipment to obtain the invented luminous element.

IT 478916-03-9P 478916-06-2P 478916-08-4P  
 478916-10-8P 478916-11-9P 478916-12-0P  
 (hetero aromatic ring-containing copolymers for luminous material)

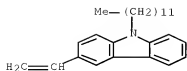
RN 478916-03-9 HCAPLUS

CN 9H-Carbazole, 9-dodecyl-3-ethenyl-, polymer with 2-(4'-ethenyl[1,1'-biphenyl]-4-yl)-5-phenyl-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

CM 1

CRN 478916-02-8

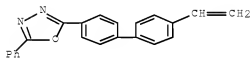
CMF C26 H35 N



CM 2

CRN 136180-42-2

CMF C22 H16 N2 O



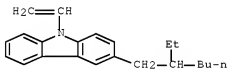
RN 478916-06-2 HCAPLUS

CN 9H-Carbazole, 9-ethenyl-3-(2-ethylhexyl)-, polymer with  
 2-(4'-ethenyl[1,1'-biphenyl]-4-yl)-5-phenyl-1,3,4-oxadiazole (9CI)  
 (CA INDEX NAME)

CM 1

CRN 478916-05-1

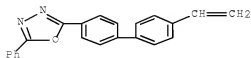
CMF C22 H27 N



CM 2

CRN 136180-42-2

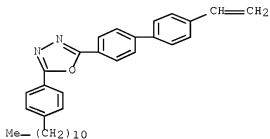
CMF C22 H16 N2 O



RN 478916-08-4 HCAPLUS  
 CN 9H-Carbazole, 9-ethenyl-, polymer with 2-(4'-ethenyl[1,1'-biphenyl]-4-yl)-5-(4-undecylphenyl)-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

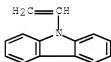
CM 1

CRN 478916-07-3  
 CMF C33 H38 N2 O



CM 2

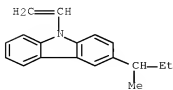
CRN 1484-13-5  
 CMF C14 H11 N



RN 478916-10-8 HCAPLUS  
 CN 9H-Carbazole, 9-ethenyl-3-(1-methylpropyl)-, polymer with 2-(4'-ethenyl[1,1'-biphenyl]-4-yl)-5-(4-undecylphenyl)-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

CM 1

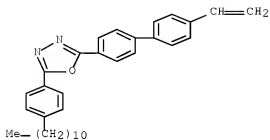
CRN 478916-09-5  
 CMF C18 H19 N



CM 2

CRN 478916-07-3

CMF C33 H38 N2 O



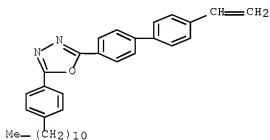
RN 478916-11-9 HCAPLUS

CN 9H-Carbazole, 9-ethenyl-, polymer with 2-(4'-ethenyl[1,1'-biphenyl]-4-yl)-5-(4-undecylphenyl)-1,3,4-oxadiazole and 2-(4-ethenylphenyl)-5-phenyl-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

CM 1

CRN 478916-07-3

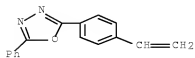
CMF C33 H38 N2 O



CM 2

CRN 17252-75-4

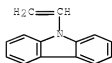
CMF C16 H12 N2 O



CM 3

CRN 1484-13-5

CMF C14 H11 N



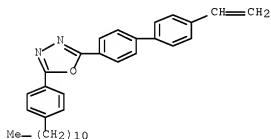
RN 478916-12-0 HCAPLUS

CN 9H-Carbazole, 9-ethenyl-, polymer with ethenylbenzene and  
 2-(4'-ethenyl[1,1'-biphenyl]-4-yl)-5-(4-undecylphenyl)-1,3,4-  
 oxadiazole (9CI) (CA INDEX NAME)

CM 1

CRN 478916-07-3

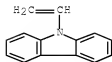
CMF C33 H38 N2 O



CM 2

CRN 1484-13-5

CMF C14 H11 N



CM 3

CRN 100-42-5

CMF C8 H8

H<sub>2</sub>C=CH—Ph

- IC ICM C08F226-06  
ICS C09K011-06; H05B033-14
- CC 38-3 (Plastics Fabrication and Uses)  
Section cross-reference(s): 42
- ST hetero arom ring contg polymer luminous material; arom  
hetero condensed ring deriv monomer unit copolymer; polyvinylcarbazole  
oxadiazole deriv polymer coumarin 6 luminous element
- IT luminescent substances  
(hetero aromatic ring-containing copolymers for luminous  
material)
- IT Polyphosphoric acids  
(hetero aromatic ring-containing copolymers for luminous  
material)
- IT 478916-03-9P 478916-06-2P 478916-08-4P  
478916-10-8P 478916-11-9P 478916-12-0P  
(hetero aromatic ring-containing copolymers for luminous  
material)
- IT 20863-23-4P 161327-39-5P 478916-02-8P 478916-07-3P  
478916-13-1P 478916-14-2P  
(hetero aromatic ring-containing copolymers for luminous  
material)
- IT 86-74-8, Carbazole 143-15-7, 1-Bromododecane 1122-91-4,  
4-Bromobenzaldehyde 3575-31-3  
(hetero aromatic ring-containing copolymers for luminous  
material)
- IT 79-37-8, Oxalyl chloride 124-41-4, Sodium methoxide 10025-87-3,  
Phosphorus oxychloride  
(hetero aromatic ring-containing copolymers for luminous  
material)
- IT 38215-36-0, Coumarin-6 344426-19-3  
(luminous element; hetero aromatic ring-containing copolymers  
for luminous material)

L44 ANSWER 23 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2002:872871 HCAPLUS Full-text

DOCUMENT NUMBER: 138:90348

TITLE: End-group analysis of blue light-  
emitting polymers using matrix-assisted  
laser desorption/ionization time-of-flight mass  
spectrometryAUTHOR(S): Chen, Hui; He, Meiyu; Pei, Jian; Liu, Bin  
CORPORATE SOURCE: Department of Chemistry, Peking University,  
Beijing, 100871, Peop. Rep. ChinaSOURCE: Analytical Chemistry (2002), 74(24),  
6252-6258

CODEN: ANCHAM; ISSN: 0003-2700

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

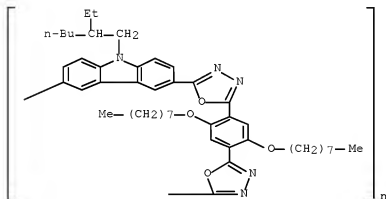
LANGUAGE: English

ED Entered STN: 19 Nov 2002

AB An anal. method based on matrix-assisted laser desorption/ionization time-of-  
flight mass spectrometry (MALDI-TOF MS) has been applied to provide

information on the structure of a copolymer, e.g., repeat unit and end group. Seven conjugated polymers, which have been demonstrated as the active component in blue light-emitting diodes, were synthesized through Suzuki polycondensation reaction in the presence of Pd(PPh<sub>3</sub>)<sub>4</sub> catalyst. Their mol. wts. were obtained using gel permeation chromatog. anal. MALDI-TOF MS was used to investigate the structure information in detail. The proposed end-group structures were confirmed by the identity between the observed and the simulated isotopic distribution of each polymer. The results demonstrate that these synthetic polymers possess various end groups and even contain macrocycles. The catalyst Pd(PPh<sub>3</sub>)<sub>4</sub> was found to introduce Ph end groups via aryl-aryl exchange between the catalytic palladium intermediate and the triphenylphosphine ligand. All these results are based on the anal. of the mass spectrum data, which suggests that MALDI-TOF MS is an extraordinarily strong tool in synthetic polymer structure anal.

- IT 244036-31-5  
 (end-group anal. of blue light-emitting  
 polymers using matrix-assisted laser desorption/ionization  
 time-of-flight mass spectrometry)  
 RN 244036-31-5 HCAPLUS  
 CN Poly[[9-(2-ethylhexyl)-9H-carbazole-3,6-diyl]-1,3,4-oxadiazole-2,5-  
 diyl[2,5-bis(octyloxy)-1,4-phenylene]-1,3,4-oxadiazole-2,5-diyl] (9CI)  
 (CA INDEX NAME)



- CC 36-4 (Physical Properties of Synthetic High Polymers)  
 ST blue light emitting conjugated polymer end group  
 mass spectrometry  
 IT Polymers, properties  
 (conjugated; end-group anal. of blue light-  
 emitting polymers using matrix-assisted laser  
 desorption/ionization time-of-flight mass spectrometry)  
 IT Molecular weight  
 Molecular weight distribution  
 (end-group anal. of blue light-emitting  
 polymers using matrix-assisted laser desorption/ionization  
 time-of-flight mass spectrometry)  
 IT Polyamines  
 (polyarylene-; end-group anal. of blue light-  
 emitting polymers using matrix-assisted laser  
 desorption/ionization time-of-flight mass spectrometry)  
 IT Functional groups  
 (terminal groups; end-group anal. of blue light-

emitting polymers using matrix-assisted laser  
desorption/ionization time-of-flight mass spectrometry)

IT 133019-09-7, Poly(9,9-dihexyl-9H-fluorene-2,7-diyl)  
244036-31-5 297153-10-7 353246-72-7 353246-74-9  
484032-90-8 484032-91-9 484064-85-9 484064-86-0  
(end-group anal. of blue light-emitting  
polymers using matrix-assisted laser desorption/ionization  
time-of-flight mass spectrometry)

REFERENCE COUNT: 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
RE FORMAT

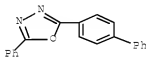
L44 ANSWER 24 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2002:823696 HCAPLUS Full-text  
DOCUMENT NUMBER: 138:144678  
TITLE: Efficient emission from a europium complex  
containing dendron-substituted diketone ligands  
AUTHOR(S): Jiang, Xuezhong; Jen, Alex K.-Y.; Phelan, Greg D.;  
Huang, Diyun; Londergan, Timothy M.; Dalton, Larry  
R.; Register, Richard A.  
CORPORATE SOURCE: Department of Materials Science and Engineering,  
University of Washington, Seattle, WA, 98195, USA  
SOURCE: Thin Solid Films (2002), 416(1-2),  
212-217  
CODEN: THSFAP; ISSN: 0040-6090  
PUBLISHER: Elsevier Science B.V.  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
ED Entered STN: 29 Oct 2002

AB A new Eu (Eu) complex with dendron-substituted diketone ligands was  
synthesized and found to exhibit a photoluminescence efficiency of 45%.  
Double-layer light-emitting diodes based on polymer matrixes doped with the Eu  
complex were fabricated. An electroluminescence external quantum efficiency  
of 0.80% was achieved when a copolymer containing side-chain carbazole and  
1,3,4-oxadiazole groups was used as the matrix. The results are analyzed in  
the context of Forster energy transfer.

IT 852-38-0, PBD 25067-59-8, Poly(N-vinylcarbazole)  
242869-73-9  
(efficient emission from europium complex containing  
dendron-substituted diketone ligands in relation to LEDs containing)

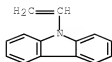
RN 852-38-0 HCAPLUS  
CN 1,3,4-Oxadiazole, 2-[1,1'-biphenyl]-4-yl-5-phenyl- (CA INDEX NAME)



RN 25067-59-8 HCAPLUS  
CN 9H-Carbazole, 9-ethenyl-, homopolymer (CA INDEX NAME)

CM 1

CRN 1484-13-5  
CMF C14 H11 N



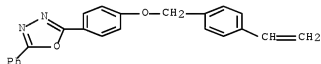
RN 292869-73-9 HCAPLUS

CN 9H-Carbazole, 9-ethynyl-, polymer with 2-[4-[(4-ethynylphenyl)methoxy]phenyl]-5-phenyl-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

CM 1

CRN 292869-70-6

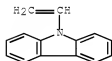
CMF C23 H18 N2 O2



CM 2

CRN 1484-13-5

CMF C14 H11 N



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 22, 77

ST europium complex dendron diketone LED electroluminescence luminescence

IT luminescence  
(UV; efficient emission from europium complex containing dendron-substituted diketone ligands)

IT luminescence, electroluminescence  
(efficient emission from europium complex containing dendron-substituted diketone ligands)

IT Electroluminescent devices  
Energy transfer  
(efficient emission from europium complex containing

dendron-substituted diketone ligands in relation to)  
 IT 852-38-9, PBD 25067-59-8, Poly(N-vinylcarbazole)  
 292869-73-9  
 (efficient emission from europium complex containing  
 dendron-substituted diketone ligands in relation to LEDs containing)  
 REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR  
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
 RE FORMAT

L44 ANSWER 25 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2002:792292 HCAPLUS Full-text  
 DOCUMENT NUMBER: 137:301875  
 TITLE: Novel polymer and its use in luminescent  
 device  
 INVENTOR(S): Taguchi, Toshiki  
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 17 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
JP 2002302516	A	20021018	JP 2001-104580	20010403
			<--	
PRIORITY APPLN. INFO.:			JP 2001-104580	20010403
			<--	

ED Entered STN: 18 Oct 2002

AB The polymer is represented by (Am)p-(Bn)q (A = monomer unit having both hole-transporting structure and electron-transporting structure; B = monomer unit having structure other than A; m ≥ 1; n ≥ 0; p, q = molar fraction in %; p = 1-100; q = 0-99; p + q = 100). The device has the polymer between electrodes, and preferably uses phosphors emitting light from triplet excited state. The polymer gives the device with high luminance, light-emitting efficiency, and durability.

IT 468065-94-3P

(polymer having hole-transporting and electron transporting structure for luminescent device)

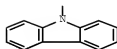
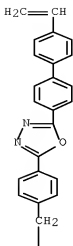
RN 468065-94-3 HCAPLUS

CN 9H-Carbazole, 9-[[4-[5-(4'-ethenyl[1,1'-biphenyl]-4-yl)-1,3,4-oxadiazol-2-yl]phenyl]methyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 468065-93-2

CMF C35 H25 N3 O



IT 468065-96-5 468065-98-7 468066-00-1  
 468066-02-6 468066-04-8 468066-06-0  
 (polymer having hole-transporting and electron transporting  
 structure for luminescent device)

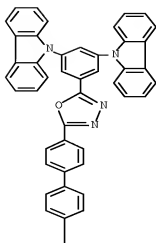
RN 468065-96-5 HCAPLUS

CN 9H-Carbazole, 9,9'-[5-[5-(4'-ethenyl[1,1'-biphenyl]-4-yl)-1,3,4-  
 oxadiazol-2-yl]-1,3-phenylene]bis-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 468065-95-4

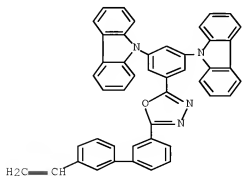
CMF C46 H30 N4 O



RN 468065-98-7 HCAPLUS  
 CN 9H-Carbazole, 9,9'-[5-[5-(3'-ethenyl[1,1'-biphenyl]-3-yl)-1,3,4-oxadiazol-2-yl]-1,3-phenylene]bis-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 468065-97-6  
 CMF C46 H30 N4 O



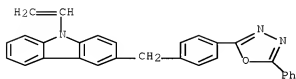
RN 468066-00-4 HCAPLUS  
 CN 9H-Carbazole, 9-ethenyl-3-[[4-(5-phenyl-1,3,4-oxadiazol-2-

yl)phenyl)methyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 468065-99-8

CMF C29 H21 N3 O



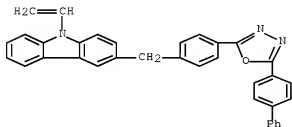
RN 468066-02-6 HCAPLUS

CN 9H-Carbazole, 3-[[4-(5-[1,1'-biphenyl]-4-yl)-1,3,4-oxadiazol-2-yl]phenyl)methyl]-9-ethenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 468066-01-5

CMF C35 H25 N3 O



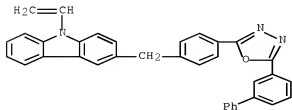
RN 468066-04-8 HCAPLUS

CN 9H-Carbazole, 3-[[4-(5-[1,1'-biphenyl]-3-yl)-1,3,4-oxadiazol-2-yl]phenyl)methyl]-9-ethenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 468066-03-7

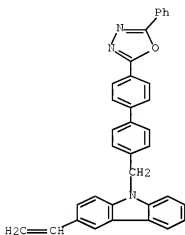
CMF C35 H25 N3 O



RN 468066-06-0 HCAPLUS  
 CN 9H-Carbazole, 3-ethenyl-9-[[4'-(5-phenyl-1,3,4-oxadiazol-2-yl)[1,1'-biphenyl]-4-yl]methyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 468066-05-9  
 CMF C35 H25 N3 O



IC ICM C08F012-32  
 ICS C08F012-26; C08F026-12; C09K011-06; H05B033-14  
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
 ST Section cross-reference(s): 37  
 ST polymer hole electron transporting structure luminescent device  
 IT Electroluminescent devices  
 IT Phosphors  
 (polymer having hole-transporting and electron transporting structure for luminescent device)  
 IT 38215-36-0, Coumarin-6 94928-86-6  
 (phosphor; polymer having hole-transporting and electron transporting structure for luminescent device)  
 IT 468065-94-3P  
 (polymer having hole-transporting and electron transporting structure for luminescent device)  
 IT 468065-96-5 468065-96-7 468066-00-1  
 468066-02-6 468066-04-8 468066-06-0  
 (polymer having hole-transporting and electron transporting structure for luminescent device)  
 IT 468065-93-2P 468066-07-1P 468066-08-2P 468066-09-3P  
 468066-10-6P  
 (polymer having hole-transporting and electron transporting structure for luminescent device)  
 IT 86-74-8, Carbazole 302-01-2, Hydrazine, reactions 497-19-8, Sodium carbonate, reactions 586-75-4, 4-Bromobenzoyl chloride 2417-72-3, 4-Bromomethylbenzoic acid methyl ester 5122-94-1  
 (polymer having hole-transporting and electron transporting

structure for luminescent device)

L44 ANSWER 26 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2002:697556 HCAPLUS Full-text

DOCUMENT NUMBER: 138:46565

TITLE: Novel europium and osmium complexes for pure red light emitting diode applications

AUTHOR(S): Jiang, Xuezhong; Philan, Greg; Carlson, Brenden; Liu, Sen; Dalton, Larry; Jen, Alex K-Y.

CORPORATE SOURCE: Department of Materials Science and Engineering, University of Washington, Seattle, WA, 98195, USA

SOURCE: Macromolecular Symposia (2002), 186(IUPAC 9th International Symposium on Macromolecule-Metal Complexes, 2001), 171-176  
CODEN: MSYMEC; ISSN: 1022-1360

PUBLISHER: Wiley-VCH Verlag GmbH

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 15 Sep 2002

AB Pure and efficient red light-emitting diodes based on novel europium (Eu) and osmium (Os) complexes were demonstrated. The Eu complex, with dendron substituted diketone ligands, exhibits high photoluminescence efficiency of 45%. When a copolymer containing carbazole and 1,3,4-oxadiazole groups was used as the host, narrow electroluminescence at 617 nm was achieved, with a full width at half maximum of 4 nm and a maximum external quantum efficiency ( $\eta$ ) of 0.80%. The Os complex shows pure red emission peaking at 650 nm. The Commission Internationale de l'Eclairage (CIE) chromaticity coordinates (x, y) are (0.65, 0.33). Maximum  $\eta$  and brightness achieved were 0.82% and 590 cd/m<sup>2</sup>, resp.

IT 292869-73-9  
(complex-doped; novel europium and osmium complexes for pure red-light-emitting diode applications)

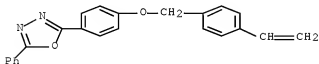
RN 292869-73-9 HCAPLUS

CN 9H-Carbazole, 9-ethenyl-, polymer with 2-[4-[(4-ethenylphenyl)methoxy]phenyl]-5-phenyl-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

CM 1

CRN 292869-70-6

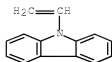
CMF C23 H18 N2 O2



CM 2

CRN 1484-13-5

CMF C14 H11 N



CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
 Section cross-reference(s): 36, 76, 78

ST europium osmium complex red light emitting diode  
 copolymer host; LED red europium osmium complex luminescence  
 UV absorption electroluminescence

IT Luminescent substances  
 (electroluminescent, red-emitting; novel europium and osmium complexes for pure red light emitting diode applications)

IT Luminescence  
 Luminescence, electroluminescence  
 (novel europium and osmium complexes for pure red-light-emitting diode applications)

IT Fluoropolymers, uses  
 (perfluorocyclobutane polymer containing tetraphenyldiamine as hole-transporting layer; novel europium and osmium complexes for pure red-light-emitting diode applications)

IT Electroluminescent devices  
 (red-emitting; novel europium and osmium complexes for pure red-light-emitting diode applications)

IT 15082-28-7, Butyl-PBD  
 (blend with PVK; novel europium and osmium complexes for pure red-light-emitting diodes containing)

IT 292869-73-9  
 (complex-doped; novel europium and osmium complexes for pure red-light-emitting diode applications)

IT 115-25-3D, Perfluorocyclobutane, polymer containing tetraphenyldiamine  
 65181-78-4D, perfluorocyclobutane polymer containing  
 (hole-transporting layer; novel europium and osmium complexes for pure red-light-emitting diodes containing)

IT 439899-47-5 478548-87-7  
 (novel europium and osmium complexes for pure red-light-emitting diode applications)

IT 2085-33-8, Alq3  
 (novel europium and osmium complexes for pure red-light-emitting diodes containing)

IT 25067-59-8, Poly(N-vinylcarbazole)  
 (novel europium and osmium complexes for pure red-light-emitting diodes containing)

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

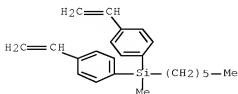
L44 ANSWER 27 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2002:576102 HCAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 137:270097  
 TITLE: White Light-Emitting Diodes  
 from Novel Silicon-Based Copolymers Containing  
 Both Electron-Transport Oxadiazole and  
 Hole-Transport Carbazole Moieties in the Main

Chain  
 AUTHOR(S): Paik, Kyung Lim; Baek, Nam Seob; Kim, Hwan Kyu;  
 Lee, Ji-Hoon; Lee, Youngil  
 CORPORATE SOURCE: Center for Smart Light-Harvesting Materials and  
 Department of Polymer Science Engineering, Hannam  
 University, Daejeon, 306-791, S. Korea  
 SOURCE: Macromolecules (2002), 35(18), 6782-6791  
 CODEN: MAMOBX; ISSN: 0024-9297  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 ED Entered STN: 04 Aug 2002  
 AB Si-based alternating copolymers containing both electron-transport oxadiazole  
 and hole-transport carbazole moieties in the main chain (SiHMOXD/Cz 10-01)  
 were synthesized by the Heck coupling reaction. The resulting polymers exhibit  
 a strong UV-visible absorption band at 345-356 nm in CHCl<sub>3</sub> solution and in  
 film state. Their PL spectra show a maximum band around 435-485 nm in the  
 blue region. The light-emitting diodes of Al (200 nm)/Ca (50 nm)/EL polymer  
 (80 nm)/PEDOT (50 nm)/ITO were successfully fabricated. And, J-V curves show a  
 turn-on voltage of 6-7 V. Their EL properties depend strongly on both the  
 applied voltage and the loading amount of hole-transport carbazole moieties in  
 the present copolymers. With the applied voltage, these emissive EL bands  
 were red shifted from blue region to red region. Also, the intensity of a blue  
 EL band at the relatively high operating voltages increases with the loading  
 amount of carbazole units. The LED device with the copolymer of SiHMOXD/Cz 19  
 exhibits the almost same intensity of two bands, like two crests, giving a  
 strong white color. The blue EL color comes from the carbazole units in these  
 Si-based copolymers. The latter red EL color comes from a specific charge  
 complex with oxadiazole (and carbazole moieties). The new red band is  
 exhibited only in EL but not in PL spectra. The EL device based on SiHMOXD/Cz  
 19 has a luminescence efficiency of 0.052 lm/W and a power efficiency of 0.13  
 cd/A at an applied voltage of 9 V And, the maximum luminance of the white  
 emissive color was 6.04 cd/m<sup>2</sup> at an applied voltage of 17 V. From the  
 photophysics studies, a specific intramol. charge complex is proposed.  
 IT 434452-96-7P  
 (white light-emitting diodes from novel  
 silicon-based copolymers containing both electron-transport oxadiazole  
 and hole-transport carbazole moieties in main chain)  
 RN 434452-96-7 HCAPLUS  
 CN 9H-Carbazole, 3,6-dibromo-9-(2-ethylhexyl)-, polymer with  
 2,5-bis(4-bromophenyl)-1,3,4-oxadiazole and bis(4-  
 ethenylphenyl)hexylmethylsilane (9CI) (CA INDEX NAME)

CM 1

CRN 247168-88-3

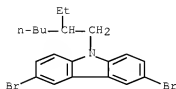
CMF C23 H30 Si



CM 2

CRN 173063-52-0

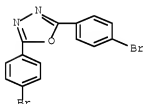
CMF C20 H23 Br2 N



CM 3

CRN 19542-05-3

CMF C14 H8 Br2 N2 O



- CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
Section cross-reference(s): 36, 38
- ST white light emitting diode silicon copolymer; LED  
polymer electron transport oxadiazole moiety; hole transport carbazole moiety main chain copolymer LED
- IT Electron transfer  
Luminescence  
Luminescence, electroluminescence  
UV and visible spectra  
(white light-emitting diodes from novel  
silicon-based copolymers containing both electron-transport oxadiazole and hole-transport carbazole moieties in main chain)
- IT Electroluminescent devices  
(white; white light-emitting diodes from novel  
silicon-based copolymers containing both electron-transport oxadiazole and hole-transport carbazole moieties in main chain)
- IT 7429-90-5, Aluminum, uses 7440-70-2, Calcium, uses 9003-53-6,  
Polystyrene 50926-11-9, Indium tin oxide  
(white light-emitting diodes from novel  
silicon-based copolymers containing both electron-transport oxadiazole and hole-transport carbazole moieties in main chain)
- IT 434452-83-2P 434452-90-1P 434452-96-7P  
(white light-emitting diodes from novel

silicon-based copolymers containing both electron-transport oxadiazole and hole-transport carbazole moieties in main chain)

IT 126213-51-2, PEDOT  
(white light-emitting diodes from novel  
silicon-based copolymers containing both electron-transport oxadiazole and hole-transport carbazole moieties in main chain)

REFERENCE COUNT: 43 THERE ARE 43 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L44 ANSWER 28 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2002:412819 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 137:125479

TITLE: Photoluminescent and Electrochemical Properties of Novel Poly(aryl ether)s with Isolated Hole-Transporting Carbazole and Electron-Transporting 1,3,4-Oxadiazole Fluorophores

AUTHOR(S): Hwang, Shiao-Wen; Chen, Yun

CORPORATE SOURCE: Department of Chemical Engineering, National Cheng Kung University, Tainan, Taiwan

SOURCE: Macromolecules (2002), 35(14), 5438-5443

CODEN: MAMOBX; ISSN: 0024-9297

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 03 Jun 2002

AB Four novel poly(aryl ether)s consisting of alternate isolated hole-transporting carbazole and electron-transporting 1,3,4-oxadiazole segments were synthesized from the nucleophilic displacement reaction of bis(fluoride) monomers with bis(phenol) monomers. These poly(aryl ether)s are soluble in common organic solvents and exhibit good thermal stability with 5% weight loss temperature above 400 °C under a nitrogen atmospheric. The photoluminescent (PL) spectra and quantum yields of these polymers are dependent on the composition of the two isolated fluorophores. The formation of exciplex in P3 was observed in the film and solution state and resulted in the lower quantum yield. The quantum yields of P4 in solns. can increase from 0.04 of P3 to 0.36, due to the dilute effect, by introducing the inert bisphenol A segments. However, the PL spectra of P4 only showed a little blue shift in the film state. This means the interchain exciplex still dominated the emission of polymeric films. The HOMO and LUMO energy levels of these polymers have been measured from cyclic voltammetry. All the observations directly proved that the oxidation in polymers started at the hole-transporting segments. Both the electron and hole affinities of these polymers could be enhanced simultaneously due to the introduction of isolated hole-transporting carbazole and electron-transporting 1,3,4-oxadiazole segments.

IT 444014-94-0P 444014-86-2P 444014-69-5P

444014-92-0P 444014-94-2P 444014-96-4P

444014-98-6P

(photoluminescent and electrochem. properties of poly(aryl ether)s with isolated carbazole and 1,3,4-oxadiazole fluorophores)

RN 444014-84-0 HCAPLUS

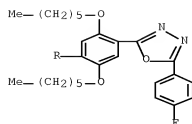
CN 9H-Carbazole-3,6-diol, 9-(2-ethylhexyl)-, polymer with 2,2'-(2,5-bis(hexyloxy)-1,4-phenylene)bis[5-(4-fluorophenyl)-1,3,4-oxadiazole] (9CI) (CA INDEX NAME)

CM 1

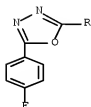
CRN 444014-83-9

CMF C34 H36 F2 N4 O4

PAGE 1-A



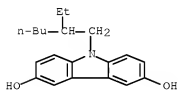
PAGE 2-A



CM 2

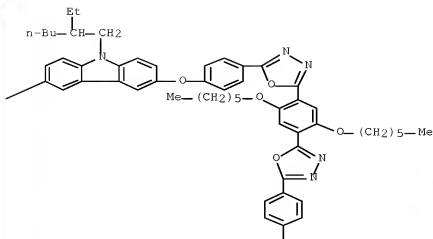
CRN 341036-57-5

CMF C20 H25 N O2



RN 444014-86-2 HCAPLUS

CN Poly[[9-(2-ethylhexyl)-9H-carbazole-3,6-diyl]oxy-1,4-phenylene-1,3,4-oxadiazole-2,5-diyl[2,5-bis(hexyloxy)-1,4-phenylene]-1,3,4-oxadiazole-2,5-diyl-1,4-phenyleneoxy] (9CI) (CA INDEX NAME)



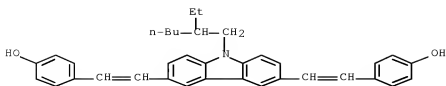
\_\_\_\_\_b

n

RN 444014-89-5 HCAPLUS  
 CN Phenol, 4,4'-[9-(2-ethylhexyl)-9H-carbazole-3,6-diyl]di-2,1-ethenediyl]bis-, polymer with 2,5-bis(4-fluorophenyl)-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

CM 1

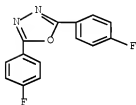
CRN 444014-88-4  
 CMF C36 H37 N O2



CM 2

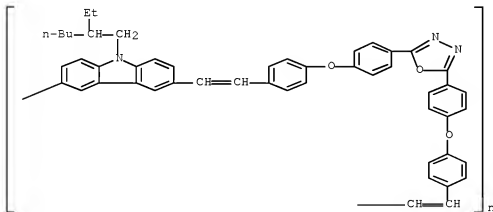
CRN 324-81-2

CMF C14 H8 F2 N2 O



RN 444014-92-0 HCAPLUS

CN Poly[[9-(2-ethylhexyl)-9H-carbazole-3,6-diyl]-1,2-ethenediyl-1,4-phenyleneoxy-1,4-phenylene-1,3,4-oxadiazole-1,4-phenyleneoxy-1,4-phenylene-1,2-ethenediyl] (9CI) (CA INDEX NAME)



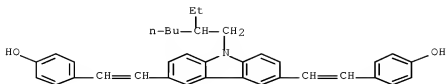
RN 444014-94-2 HCAPLUS

CN Phenol, 4,4'-[ [9-(2-ethylhexyl)-9H-carbazole-3,6-diyl]di-2,1-ethenediyl]bis-, polymer with 2,2'-[2,5-bis(hexyloxy)-1,4-phenylene]bis[5-(4-fluorophenyl)-1,3,4-oxadiazole] (9CI) (CA INDEX NAME)

CM 1

CRN 444014-88-4

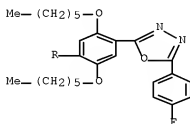
CMF C36 H37 N O2



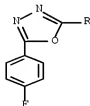
CM 2

CRN 444014-83-9

CMF C34 H36 F2 N4 O4



PAGE 1-A



PAGE 2-A

RN 444014-96-4 HCAPLUS

CN Poly[[9-(2-ethylhexyl)-9H-carbazole-3,6-diyl]-1,2-ethenediyl-1,4-phenyleneoxy-1,4-phenylene-1,3,4-oxadiazole-2,5-diyl[2,5-bis(hexyloxy)-1,4-phenylene]-1,3,4-oxadiazole-2,5-diyl-1,4-phenyleneoxy-1,4-phenylene-1,2-ethenediyl] (9CI) (CA INDEX NAME)

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

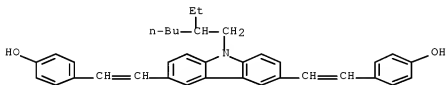
RN 444014-98-6 HCAPLUS

CN Phenol, 4,4'-[[9-(2-ethylhexyl)-9H-carbazole-3,6-diyl]di-2,1-ethenediyl]bis-, polymer with 2,2'-[2,5-bis(hexyloxy)-1,4-phenylene]bis[5-(4-fluorophenyl)-1,3,4-oxadiazole] and 4,4'-(1-methylethylidene)bis[phenol] (9CI) (CA INDEX NAME)

CM 1

CRN 444014-88-4

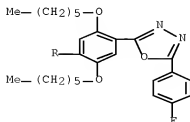
CMF C36 H37 N O2



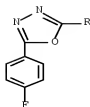
CM 2

CRN 444014-83-9

CMF C34 H36 F2 N4 O4



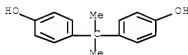
PAGE 1-A



CM 3

CRN 80-05-7

CMF C15 H16 O2



CC 35-5 (Chemistry of Synthetic High Polymers)  
 Section cross-reference(s): 27, 28, 73

ST carbazole oxadiazole contg polyaryl ether synthesis; thermal stability  
 photoluminescence electroluminescence electrochem property  
 polyaryl ether

IT Cyclic voltammetry  
 Fluorescent substances  
 HOMO (molecular orbital)  
 LUMO (molecular orbital)  
 Luminescence  
 Luminescence, electroluminescence  
 Oxidation potential  
 Thermal stability  
 (of poly(aryl ether)s with isolated carbazole and 1,3,4-oxadiazole  
 fluorophores)

IT 444014-84-0P 444014-86-2P 444014-89-5P  
 444014-92-0P 444014-94-2P 444014-96-4P  
 444014-98-6P  
 (photoluminescent and electrochem. properties of poly(aryl ether)s  
 with isolated carbazole and 1,3,4-oxadiazole fluorophores)

REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR  
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
 RE FORMAT

L44 ANSWER 29 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2002:387992 HCAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 137:69913  
 TITLE: Effect of carbazole-oxadiazole excited-state  
 complexes on the efficiency of dye-doped  
 light-emitting diodes  
 AUTHOR(S): Jiang, Xuezhong; Register, Richard A.; Killeen,  
 Kelly A.; Thompson, Mark E.; Pschenitzka, Florian;

CORPORATE SOURCE: Hebner, Thomas R.; Sturm, James C.  
 Department of Chemical Engineering, Princeton  
 University, Princeton, NJ, 08544, USA  
 SOURCE: Journal of Applied Physics (2002),  
 91(10, Pt. 1), 6717-6724  
 CODEN: JAPIAU; ISSN: 0021-8979  
 PUBLISHER: American Institute of Physics  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

ED Entered STN: 24 May 2002

AB Interactions between hole-transporting carbazole groups and electron-transporting 1,3,4-oxadiazole groups were studied by photoluminescence and electroluminescence (EL) spectroscopy, in blends of poly(N-vinylcarbazole) with 2-tert-butylphenyl-5-biphenyl-1,3,4-oxadiazole (PVK:PBD) and in random copolymers with carbazole and oxadiazole groups attached as side chains. Different excited-state complexes form in the blends, which exhibit exciplexes, and in the copolymers, which manifest electroplexes, due to topol. constraints on the position of carbazole and oxadiazole units in the polymer. Both types of complex red shift the EL spectra of the matrixes compared with pure PVK homopolymer, although the shift is significantly greater for the electroplex. The presence of these complexes has a profound effect on the external quantum efficiency of dye-doped organic light-emitting diodes employing the blends or copolymers as matrixes, as it strongly affects the efficiency of Forster energy transfer from the matrix to the dye. Single-layer devices doped with either Coumarin 47 (C47), Coumarin 6 (C6), or Nile Red (NR) were compared. Among the three dye-doped PVK:PBD devices, C6 doping yields the highest efficiency, while NR doping produced the most efficient copolymer devices, consistent with the degree of overlap between the EL spectrum of the matrix material and the absorption spectrum of the dye.

IT 280573-74-2 292869-73-9

(effect of carbazole-oxadiazole excited-state complexes on efficiency of dye-doped light-emitting diodes)

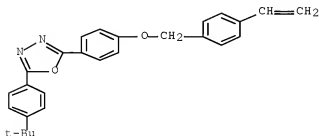
RN 280573-74-2 HCAPLUS

CN 9H-Carbazole, 9-ethenyl-, polymer with 2-[4-(1,1-dimethylethyl)phenyl]-5-[4-[(4-ethenylphenyl)methoxy]phenyl]-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

CM 1

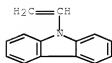
CRN 280573-73-1

CMF C27 H26 N2 O2



CM 2

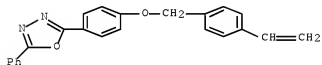
CRN 1484-13-5  
CMF C14 H11 N



RN 292869-73-9 HCAPLUS  
CN 9H-Carbazole, 9-ethenyl-, polymer with 2-[4-[(4-ethenylphenyl)methoxy]phenyl]-5-phenyl-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

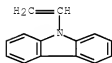
CM 1

CRN 292869-70-6  
CMF C23 H18 N2 O2



CM 2

CRN 1484-13-5  
CMF C14 H11 N



CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
ST polyvinyl carbazole oxadiazole electroluminescent device  
exciplex  
IT Electroluminescent devices  
Exciplex  
Luminescence  
Luminescence, electroluminescence  
UV and visible spectra  
(effect of carbazole-oxadiazole excited-state complexes on efficiency of dye-doped light-emitting diodes)  
IT 91-44-1, Coumarin 47 91-64-5, Coumarin 7385-67-3, Nile red

(effect of carbazole-oxadiazole excited-state complexes on efficiency of dye-doped light-emitting diodes)  
 IT 852-38-0, PBD 25067-59-8, Poly(N-vinyl carbazole)  
 280573-74-2 292869-71-7 292869-72-8 292869-73-9  
 (effect of carbazole-oxadiazole excited-state complexes on efficiency of dye-doped light-emitting diodes)  
 REFERENCE COUNT: 46 THERE ARE 46 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L44 ANSWER 30 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2002:349432 HCAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 136:348103  
 TITLE: Charge transferring polymers for manufacturing organic electroluminescence devices by wet processes  
 INVENTOR(S): Sakakibara, Mitsuhiro; Negoro, Yasunori; Yasuda, Hiroyuki; Tanaka, Akira; Fukuda, Tatsuo  
 PATENT ASSIGNEE(S): Jsr Ltd., Japan; Futaba Denshi Kogyo Co., Ltd.; Kokusai Kiban Zairyo Kenkyusho K. K.  
 SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002134277	A	20020510	JP 2000-319717	20001019
			<--	
PRIORITY APPLN. INFO.:			JP 2000-319717	20001019
			<--	

ED Entered STN: 10 May 2002

AB The charge transferring polymers comprise (A) units comprising 80-100 mol% hole-transferring monofunctional monomers and 0-20% polyfunctional crosslinkable monomers and (B) units comprising hole-transferring monofunctional monomers 40-60, electron-transferring monofunctional monomers 40-60, and polyfunctional crosslinkable monomers 0-20 mol%, wherein the ratio of the monofunctional monomer structure in B to that in A is in the range of 5/95 to 50/50 and the total polyfunctional monomer structure content is in the range of 0.1 to 10 mol%. The polymers may have a block structure of A and B. Solns. of electroluminescence materials are coated on the charge transfer layer of the polymers with no damage on the polymer layer in manufacturing organic EL devices.

IT 418755-09-6P  
 (charge transferring polymers for manufacturing organic EL devices by wet processes)

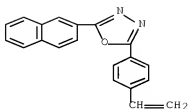
RN 418755-09-6 HCAPLUS

CN 9H-Carbazole, 9-ethenyl-, polymer with diethenylbenzene and 2-(4-ethenylphenyl)-5-(2-naphthalenyl)-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

CM 1

CRN 21464-06-2

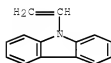
CMF C20 H14 N2 O



CM 2

CRN 1484-13-5

CMF C14 H11 N



CM 3

CRN 1321-74-0

CMF C10 H10

CCI IDS



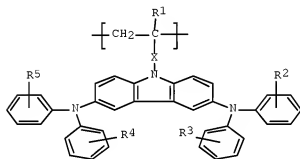
2 [ D1-CH=CH2 ]

IC ICM H05B033-22  
 ICS C08F293-00; C08L053-00; C08L101-00; H05B033-10; H05B033-14  
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
 ST electroluminescence device org charge transfer polymer; wet process org EL device manuf  
 IT Electroluminescent devices  
 (charge transferring polymers for manufacturing organic EL devices by wet processes)  
 IT 76623-94-4P, Divinylbenzene-N-vinylcarbazole copolymer  
 413755-09-6P  
 (charge transferring polymers for manufacturing organic EL devices by wet processes)

ACCESSION NUMBER: 2002:313486 HCAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 136:348063  
 TITLE: Organic electroluminescent device  
 INVENTOR(S): Sakakibara, Mitsuhiro; Yasuda, Hiroyuki; Negoro, Yasunori  
 PATENT ASSIGNEE(S): JSR Ltd., Japan; Futaba Denshi Kogyo Co., Ltd.; Kokusai Kiban Zairyo Kenkyusho K. K.  
 SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

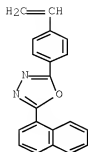
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002124389	A	20020426	JP 2000-314940	20001016
			<--	
PRIORITY APPLN. INFO.:			JP 2000-314940	20001016
			<--	

ED Entered STN: 26 Apr 2002  
 GI



I

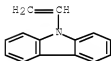
AB The invention relates to an organic electroluminescent device comprising the hole transport layer made of the polymer having the structural unit represented by I [R1 = H, alkyl, and Ph groups; R2-5 = H, alkyl, alkoxy, Ph and dialkylamino groups; X = single bond, phenylene, carbonyl, and divalent organic groups containing phenylene and/or carbonyl group].  
 IT 197089-43-3  
 (hole transport material for organic electroluminescent device)  
 RN 197089-43-3 HCAPLUS  
 CN 9H-Carbazole, 9-ethenyl-, polymer with 2-(4-ethenylphenyl)-5-(1-naphthalenyl)-1,3,4-oxadiazole (9CI) (CA INDEX NAME)  
 CM 1  
 CRN 197089-41-1  
 CMF C20 H14 N2 O



CM 2

CRN 1484-13-5

CMF C14 H11 N



IC ICM H05B033-22  
ICS C08F012-26; C08F020-34; C08F020-60; C08F026-06; C09K011-06;  
H05B033-14

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
Section cross-reference(s): 38

ST org electroluminescent device hole transport material  
carbazole deriv

IT Electroluminescent devices  
(hole transport material for organic electroluminescent device)

IT 197889-43-3 397247-48-2 397247-49-3 397247-50-6  
397247-52-8  
(hole transport material for organic electroluminescent device)

IT 86-74-8, Carbazole 98-95-3, Nitrobenzene, reactions 920-46-7,  
Methacryloyl chloride 1205-64-7 7726-95-6, Bromine, reactions  
30674-80-7 397247-45-9  
(hole transport material for organic electroluminescent device)

IT 16982-76-6P 255829-24-4P 397247-44-8P 397247-46-0P  
397247-47-1P  
(hole transport material for organic electroluminescent device)

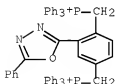
L44 ANSWER 32 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2002:255333 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 137:47536

TITLE: Synthesis and properties of photoluminescent  
polymers bearing electron-facilitating oxadiazole

derivative side groups  
 AUTHOR(S): Kim, J. J.; Kim, K.-S.; Baek, S.; Kim, H. C.; Ree, M.  
 CORPORATE SOURCE: Department of Chemistry, Center for Integrated Molecular Systems, BK21 Functional Polymer Thin Film Group, Polymer Research Institute, Pohang University of Science and Technology, Pohang, 790-784, S. Korea  
 SOURCE: Journal of Polymer Science, Part A: Polymer Chemistry (2002), 40(8), 1173-1183  
 CODEN: JPAC; ISSN: 0887-624X  
 PUBLISHER: John Wiley & Sons, Inc.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 ED Entered STN: 05 Apr 2002  
 AB Poly(p-divinylphenylene) derivs. bearing fluorene and carbazole units in the main chain and 5-phenyl-1,3,4-oxadiazole moieties as side groups were prepared by the polycondensation of a newly synthesized monomer, [2-(5'-phenyl-1',3',4'-oxadiazole-2'-yl)-1,4-xylylene]bis(triphenylphosphonium bromide) (OXAD), with 9,9-dibutylfluorene-2,2'-dicarbaldehyde (DBFDA) and 9-(2-ethylhexyl)carbazole-3,6-dicarbaldehyde (EHEDA), which gave DBFDA-OXAD and EHEDA-OXAD. Analogs of these polymers without the side groups were also synthesized by the reaction of 1,4-xylylene bis(tri-Ph phosphonium bromide) (PXYL) with the dicarbaldehydes, which gave DBFDA-PXYL and EHEDA-PXYL. All the synthesized polymers are soluble in organic solvents, giving films of good quality. The polymers are stable beyond 375°. They emit blue and blue-green light, and their quantum yields are 38-79% in solution and 1-24% in film, depending on the fluorene and carbazole units as well as the side groups. In particular, the OXAD-based polymers contain hole-facilitating backbones and electron-facilitating side groups, perhaps allowing these polymers to transport both holes and electrons. Overall, the synthesized polymers are potential candidates for the fabrication of light-emitting devices.  
 IT 437722-44-6P  
 (synthesis and properties of photoluminescent polymers bearing electron-facilitating oxadiazole derivative side groups)  
 RN 437722-44-6 HCAPLUS  
 CN Phosphonium, [[2-(5-phenyl-1,3,4-oxadiazol-2-yl)-1,4-phenylene]bis(methylene)]bis[triphenyl-, dibromide, polymer with 9-(2-ethylhexyl)-9H-carbazole-3,6-dicarboxaldehyde (9CI) (CA INDEX NAME)  
 CM 1  
 CRN 437722-33-3  
 CMF C52 H42 N2 O P2 . 2 Br

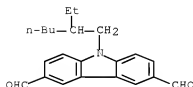


● 2 Br-

CM 2

CRN 169051-20-1

CMF C22 H25 N O2



- CC 35-5 (Chemistry of Synthetic High Polymers)  
Section cross-reference(s): 36, 37, 73
- ST oxadiazole polydivinylbenzophenylene deriv prepn photoluminescence;  
light emitting oxadiazole polydivinylbenzophenylene  
deriv prepn; electron hole transporting oxadiazole  
polydivinylbenzophenylene deriv prepn
- IT Electrooptical materials  
Glass transition temperature  
Light  
Luminescence  
Optical absorption  
Optical transmission  
Polymerization  
Solubility  
UV absorption  
Viscosity  
(synthesis and properties of photoluminescent polymers bearing  
electron-facilitating oxadiazole derivative side groups)
- IT 265126-14-5P 405107-99-5P 437722-42-4P 437722-44-6P  
437722-46-8P 437722-48-0P 438186-89-1P 438186-90-4P  
(synthesis and properties of photoluminescent polymers bearing  
electron-facilitating oxadiazole derivative side groups)
- REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
RE FORMAT
- L44 ANSWER 33 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN
- ACCESSION NUMBER: 2002:229653 HCAPLUS Full-text
- DOCUMENT NUMBER: 137:20701
- TITLE: Synthesis, characterization, and  
electroluminescence studies of novel  
silicon-based alternating copolymers containing  
oxadiazole units for PLED
- AUTHOR(S): Paik, Kyung Lim; Baek, Nam Seob; Kim, Hwan Kyu;  
Lee, Ji-Hoon
- CORPORATE SOURCE: National Creative Initiative Center Smart  
Light-Harvesting Materials, Dep. Polymer Sci.  
Eng., Hannam Univ., Taejeon, 306-791, S. Korea
- SOURCE: Polymer Preprints (American Chemical Society,  
Division of Polymer Chemistry) (2002),  
43(1), 77-78

CODEN: ACPPAY; ISSN: 0032-3934

PUBLISHER: American Chemical Society, Division of Polymer Chemistry

DOCUMENT TYPE: Journal; (computer optical disk)

LANGUAGE: English

ED Entered STN: 27 Mar 2002

AB Silicon-based alternating copolymers containing oxadiazole units as electroluminescent materials were prepared by the Heck coupling reaction. The resulting polymers in UV-visible absorption region exhibit a strong band at 359-380 nm in chloroform solution. Upon a photoexcitation, their photoluminescence spectra showed a maximum band around 425-470 nm. In the film state, the absorption maximum wavelength appeared at 355-381 nm. Upon photoexcitation, their photoluminescence spectra showed maximum band at 455-475 nm. The light-emitting diodes of Al (200 nm)/Ca (50 nm)/electroluminescent polymer (80 nm)/PEDOT (50 nm)/ITO were fabricated. The current-voltage curves showed the turn on voltage of 4.4-7 V. The multilayered light-emitting diodes emit the white light at higher voltage, mainly due to the formation of charge complexes like electroplex or excimer.

IT 434452-96-7P

(preparation, characterization, and electroluminescence study of)

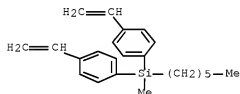
RN 434452-96-7 HCAPLUS

CN 9H-Carbazole, 3,6-dibromo-9-(2-ethylhexyl)-, polymer with 2,5-bis(4-bromophenyl)-1,3,4-oxadiazole and bis(4-ethenylphenyl)hexylmethylsilane (9CI) (CA INDEX NAME)

CM 1

CRN 247168-88-3

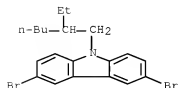
CMF C23 H30 S1



CM 2

CRN 173063-52-0

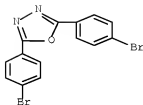
CMF C20 H23 Br2 N



CM 3

CRN 19542-05-3

CMF C14 H8 Br2 N2 O

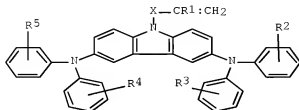


CC 35-6 (Chemistry of Synthetic High Polymers)  
 Section cross-reference(s): 73  
 ST silicone oxadiazole polymer prepn electroluminescence; LED  
 silicone oxadiazole polymer prepn  
 IT luminescence, electroluminescence  
 (of silicon-based alternating copolymers containing oxadiazole units  
 for LED)  
 IT Polyoxadiazoles  
 (polycarbosilane-; preparation, characterization, and  
 electroluminescence study of)  
 IT Polycarbosilanes  
 (polyoxadiazole-; preparation, characterization, and  
 electroluminescence study of)  
 IT Electroluminescent devices  
 (preparation and characterization of silicon-based alternating  
 copolymers containing oxadiazole units for)  
 IT 434452-83-2P 434452-90-1P 434452-96-7P 434453-02-8P  
 (preparation, characterization, and electroluminescence study  
 of)  
 REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR  
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
 RE FORMAT

L44 ANSWER 34 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2002:113165 HCAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 136:175241  
 TITLE: Carbazole derivative, its polymer, and its use as  
 hole-transporting material in  
 electroluminescent device  
 INVENTOR(S): Sakakibara, Mitsuhiro; Yasuda, Hiroyuki; Negoro,  
 Yasunori  
 PATENT ASSIGNEE(S): Jsr Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 25 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2002047271 A 20020212 JP 2000-228927 20000728  
 <--  
 PRIORITY APPLN. INFO.: JP 2000-228927 20000728  
 <--  
 OTHER SOURCE(S): MARPAT 136:175241  
 ED Entered SIN: 12 Feb 2002  
 GI



I

AB The hole-transporting material contains a polymer having a unit derived from a carbazole derivative I (R1 = H, alkyl, Ph; R2-R5 = H, alkyl, k alkoxy, Ph, dialkylamino; X = none, divalent group having phenylene and/or CO) and other optional polymers satisfying the ratio of I unit in the total polymers  $\geq 5$  mass%. The material shows high durability in repeated use.

IT 197089-43-3  
 (carbazole derivative and polymer for hole-transporting material in electroluminescent device)

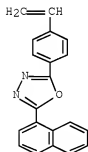
RN 197089-43-3 HCAPLUS

CN 9H-Carbazole, 9-ethenyl-, polymer with 2-(4-ethenylphenyl)-5-(1-naphthalenyl)-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

CM 1

CRN 197089-41-1

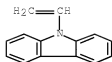
CMF C20 H14 N2 O



CM 2

CRN 1484-13-5

CMF C14 H11 N



- IC ICM C07D209-88  
ICS C08F012-32; C08F020-34; C08F026-06; C08L025-18; C08L033-14;  
C08L039-04; G03G005-07; H05B033-14; H05B033-22
- CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
Section cross-reference(s): 35, 38
- ST carbazole polymer hole transporter electroluminescent device; EL device hole transporting agent carbazole polymer
- IT Electroluminescent devices  
(carbazole derivative and polymer for hole-transporting material in electroluminescent device)
- IT Monomers  
(carbazole derivative and polymer for hole-transporting material in electroluminescent device)
- IT 16982-76-6P  
(bromination of; carbazole derivative and polymer for hole-transporting material in electroluminescent device)
- IT 397247-48-2P 397247-49-3P 397247-50-6P 397247-52-8P  
(carbazole derivative and polymer for hole-transporting material in electroluminescent device)
- IT 197069-43-3  
(carbazole derivative and polymer for hole-transporting material in electroluminescent device)
- IT 255829-24-4P 397247-45-9P  
(carbazole derivative and polymer for hole-transporting material in electroluminescent device)
- IT 86-74-8, Carbazole 98-95-3, Nitrobenzene, reactions 920-46-7, Methacryloyl chloride 1205-64-7 30674-80-7, 2-Isocyanatoethyl methacrylate  
(carbazole derivative and polymer for hole-transporting material in electroluminescent device)
- IT 397247-44-8P  
(deprotection of; carbazole derivative and polymer for hole-transporting material in electroluminescent device)
- IT 397247-46-0P 397247-47-1P  
(polymerization of; carbazole derivative and polymer for hole-transporting material in electroluminescent device)

L44 ANSWER 35 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2001:745723 HCAPLUS Full-text  
DOCUMENT NUMBER: 135:310673  
TITLE: Organic electroluminescent devices  
INVENTOR(S): Sugiura, Hisanori; Hisada, Hitoshi; Sato, Tetsuya; Matsuo, Mikiko  
PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 16 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001284052	A	20011012	JP 2000-101930	20000404
			<--	
PRIORITY APPLN. INFO.:			JP 2000-101930	20000404
			<--	

ED Entered STN: 12 Oct 2001

AB The devices comprise: a pair of anode and a cathode interposing an organic laminate including a light-emitting layer containing a copolymer of a 1st monomer having an electron transporting mol. and a 2nd monomer having a phosphor mol.

IT 366464-03-1 366464-06-4  
(organic electroluminescent devices)

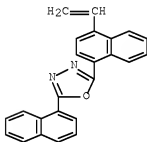
RN 366464-03-1 HCAPLUS

CN 9H-Carbazole, 9-ethenyl-, polymer with 2-(4-ethenyl-1-naphthalenyl)-5-(1-naphthalenyl)-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

CM 1

CRN 366464-02-0

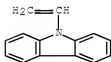
CMF C24 H16 N2 O



CM 2

CRN 1484-13-5

CMF C14 H11 N

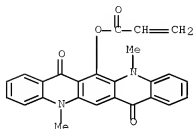


RN 366464-06-4 HCAPLUS

CN 2-Propenoic acid, 4'-[5-[4-(1,1-dimethylethyl)phenyl]-1,3,4-oxadiazol-2-yl][1,1'-biphenyl]-4-yl ester, polymer with 5,7,12,14-tetrahydro-5,12-dimethyl-7,14-dioxoquino[2,3-b]acridin-6-yl 2-propenoate (9CI) (CA INDEX NAME)

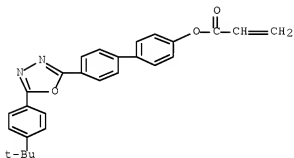
CM 1

CRN 366464-05-3  
 CMF C25 H18 N2 O4



CM 2

CRN 366464-04-2  
 CMF C27 H24 N2 O3

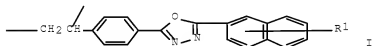


IC ICM H05B033-14  
 ICS C09K011-06  
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
 ST org electroluminescent copolymer phosphor electron transport  
 IT Electric transport properties  
 Electrodes  
 Phosphors  
 Pigments, nonbiological  
 Semiconductor lasers  
 (organic electroluminescent devices)  
 IT Electroluminescent devices  
 (organic; organic electroluminescent devices)  
 IT 7429-90-5, Aluminum, uses 7439-93-2, Lithium, uses 15082-28-7  
 16998-91-7 50926-11-9, ITO 65181-78-4 366464-03-1  
 366464-06-4 366464-08-6 366464-11-1 366464-13-3  
 366464-14-4 366464-15-5 366464-17-7 366464-19-9 366464-20-2  
 366464-21-3 366478-95-7 366478-98-0 366479-00-7 366479-01-8  
 366479-02-9  
 (organic electroluminescent devices)

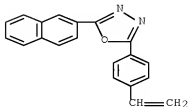
L44 ANSWER 36 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2001:336775 HCAPLUS Full-text  
 DOCUMENT NUMBER: 134:346296  
 TITLE: Organic electroluminescent material  
 INVENTOR(S): Sakakibara, Mitsuhiro; Takeuchi, Yasumasa; Jung, Sadakuni  
 PATENT ASSIGNEE(S): Jsr Co., Ltd., Japan; Kokusai Kiban Zairyo Kenkyusho K. K.; Dongyuan Electric Co., Ltd.  
 SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001126875	A	20010511	JP 1999-306406	19991028
			<--	
PRIORITY APPLN. INFO.:			JP 1999-306406	19991028
			<--	

ED Entered STN: 11 May 2001  
 GI



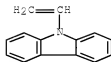
AB The invention refer sot an organic electroluminescent material comprising > 50% mol. of poly(N-vinyl carbazole), and < 50% mol. of I [R1 = H, alkyl or aryl].  
 IT 221327-82-8  
 (organic electroluminescent material)  
 RN 221327-82-8 HCAPLUS  
 CN 9H-Carbazole, 9-ethenyl-, polymer with 2-(4-ethenylphenyl)-5-(2-naphthalenyl)-1,3,4-oxadiazole, block (9CI) (CA INDEX NAME)  
 CM 1  
 CRN 21464-06-2  
 CMF C20 H14 N2 O



CM 2

CRN 1484-13-5

CMF C14 H11 N



IC ICM H05B033-22  
 ICS C08L025-18; C08L039-04; H05B033-14  
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
 ST electroluminescent device oxadiazole polyvinyl carbazole  
 IT Electroluminescent devices  
 (organic electroluminescent material)  
 IT 221327-82-8  
 (organic electroluminescent material)

L44 ANSWER 37 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2001:256388 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 135:242557

TITLE: Synthesis and characterization of  
 electroluminescent copolymers with both  
 1,3,4-oxadiazole and carbazole units in the side  
 chain

AUTHOR(S): Liu, Yu-fang; Chen, Zhao-bin; Bai, Feng-lian

CORPORATE SOURCE: Department of Chemistry, Shanxi University,  
 Taiyuan, 030006, Peop. Rep. China

SOURCE: Shanxi Daxue Xuebao, Ziran Kexueban (2001  
 ), 24(1), 64-66

CODEN: SDXKDT; ISSN: 0253-2395

PUBLISHER: Shanxi Daxue Xuebao Bianjibu

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

ED Entered STN: 12 Apr 2001

AB Two new electroluminescence copolymers containing both 1,3,4-oxadiazole and carbazole units in the side chain were synthesized. The two copolymers, PVC2-MOXD and PVC2-POXD, were characterized by IR and <sup>1</sup>HNMR spectra, and they have good solubility in common organic solvents. Thermal anal. showed their glass-transition temps. were at 105° and 125°, resp. Moreover, their weight loss was less than 5% on heating to about 360° under nitrogen atmospheric

IT 359856-54-5P 359856-57-8P

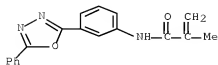
(synthesis and characterization of electroluminescent  
 copolymers with both 1,3,4-oxadiazole and carbazole units in the  
 side chain)

RN 359856-54-5 HCAPLUS

CN 2-Propenamide, 2-methyl-N-[3-(5-phenyl-1,3,4-oxadiazol-2-yl)phenyl]-,  
 polymer with 9-ethenyl-9H-carbazole (9CI) (CA INDEX NAME)

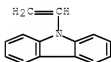
CM 1

CRN 184913-68-6  
 CMF C18 H15 N3 O2



CM 2

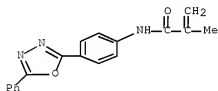
CRN 1484-13-5  
 CMF C14 H11 N



RN 359856-57-8 HCAPLUS  
 CN 2-Propenamide, 2-methyl-N-[4-(5-phenyl-1,3,4-oxadiazol-2-yl)phenyl]-,  
 polymer with 9-ethenyl-9H-carbazole (9CI) (CA INDEX NAME)

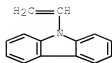
CM 1

CRN 359856-56-7  
 CMF C18 H15 N3 O2



CM 2

CRN 1484-13-5  
 CMF C14 H11 N



CC 35-4 (Chemistry of Synthetic High Polymers)  
 ST electroluminescent copolymer contg oxadiazole carbazole unit  
 side chain  
 IT Phosphors  
 (electroluminescent; synthesis and characterization of  
 electroluminescent copolymers with both 1,3,4-oxadiazole  
 and carbazole units in the side chain)  
 IT 359856-54-5P 359856-57-8P  
 (synthesis and characterization of electroluminescent  
 copolymers with both 1,3,4-oxadiazole and carbazole units in the  
 side chain)

L44 ANSWER 38 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2001:238145 HCAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 134:245020  
 TITLE: Preparation and application of  
 electroluminescent polymers containing  
 multiple functional groups  
 INVENTOR(S): Zhu, Weihong; Tian, He; Hu, Meng  
 PATENT ASSIGNEE(S): Huadong Science and Engineering Univ., Peop. Rep.  
 China  
 SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 14  
 pp.  
 CODEN: CNXXEV  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Chinese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1266877	A	20000920	CN 2000-111494	20000125
			<--	
PRIORITY APPLN. INFO.:			CN 2000-111494	20000125
			<--	
ED Entered STN: 05 Apr 2001				
GI				

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

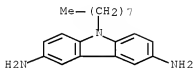
AB Electroluminescent polymers prepared by connecting main chain with electron  
 transporting functional group, hole transporting functional group and luminous  
 unit are described by the general formula I, II, and III (B = IV; B' = V; C =  
 VI; C' = VII; and D = O(CH<sub>2</sub>)<sub>n</sub>OCO(CH<sub>2</sub>)<sub>m</sub>CO; x = 0.10-0.30; y = 0.10-0.30; z =  
 0.40-0.80; p = 30-100; m, n = 2, 4, 6, and 8 and R = alkyl groups). The  
 polymers can be used in electroluminescent devices.  
 IT 339482-48-9P  
 (electroluminescent polymers containing multiple functional  
 groups)

RN 330482-48-9 HCAPLUS  
 CN 1H-Benz[de]isoquinoline-2(3H)-propanal, 1,3-dioxo-6-[(3-oxopropyl)amino]-, polymer with 9-octyl-9H-carbazole-3,6-diamine and 4,4'-(1,3,4-oxadiazole-2,5-diyl)bis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

CRN 330482-47-8

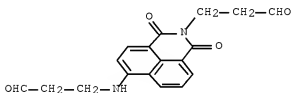
CMF C20 H27 N3



CM 2

CRN 330482-46-7

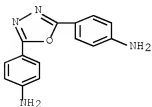
CMF C18 H16 N2 O4



CM 3

CRN 2425-95-8

CMF C14 H12 N4 O



IC ICM C09K011-06

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 38, 76

ST electrochromic polymer

IT Electrochromic devices  
(electrochromic polymers containing multiple functional groups)

IT Phosphors  
(electrochromic; electrochromic polymers containing multiple functional groups)

IT 287177-89-3P 330482-48-9P  
(electrochromic polymers containing multiple functional groups)

IT 81-86-7 86-74-8, 9H-Carbazole 111-83-1 122-04-3 141-43-5, reactions 636-97-5  
(electrochromic polymers containing multiple functional groups)

IT 1044-49-1P 2425-95-8P 4041-19-4P 4402-22-6P 56613-64-0P  
330482-49-0P 330482-50-3P  
(electrochromic polymers containing multiple functional groups)

IT 330482-51-4P  
(electrochromic polymers containing multiple functional groups)

L44 ANSWER 39 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2001:221079 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 135:20300

TITLE: Synthesis of electrochromic organic/inorganic polymer nanocomposites

AUTHOR(S): Farmer, Steven C.; Patten, Timothy E.

CORPORATE SOURCE: Department of Chemistry, University of California at Davis, Davis, CA, 95616-5295, USA

SOURCE: Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (2001), 42(1), 578-579

CODEN: ACPPAY; ISSN: 0032-3934

PUBLISHER: American Chemical Society, Division of Polymer Chemistry

DOCUMENT TYPE: Journal; (computer optical disk)

LANGUAGE: English

ED Entered STN: 29 Mar 2001

AB A method was developed for grafting polymer chains from the surface of 53 nm CdS/SiO<sub>2</sub> core/shell nanospheres using atom transfer radical polymerization (ATRP). The use of silica encapsulated CdS allows for particularly robust films, because silica protects the CdS quantum dots against photodegradation. The monomers used are hole conducting 2-(9-carbazolyl)ethyl methacrylate (CzEMA), Me methacrylate (MMA), and electron conducting 2-[4'-(methylethoxysilyl)carbonyl]biphenyl-4-yl]-5-(4-tert-butylphenyl)-1,3,4-oxadiazole (MMPBD). First the CdS/SiO<sub>2</sub> nanospheres were synthesized from cadmium nitrate in ammonium sulfide microemulsion; upon formation of CdS quantum dots, NH<sub>4</sub>OH and TEOS were added to form the silica coating. The silica surface was modified with the ATRP initiator, 3-(dimethylethoxysilyl)propyl-2-bromopropionate, (BDES). The modified nanospheres were then used in polymerization of MMA, CzEMA, and MMPBD. The polymer composite nanoparticles were easily dispersed in THF and could be cast into transparent films. Because the grafted polymer chain contains hole and electron conductive moieties these nanocomposites offer some interesting possibilities for the synthesis of a one layer electrochromic devices.

IT 342648-32-2P

(preparation of electrochromic hybrid

CdS/silica/biphenyloxadiazole-carbazolyl methacrylate polymer

nanocomposites by ATRP on initiator-functionalized nanosphere surface)

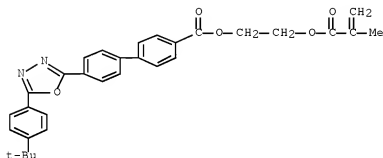
RN 342648-32-2 HCAPLUS

CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-[5-[4-(1,1-dimethylethyl)phenyl]-1,3,4-oxadiazol-2-yl]-, 2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl ester, polymer with 2-(9H-carbazol-9-yl)ethyl 2-methyl-2-propenoate and methyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 342648-31-1

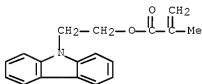
CMF C31 H30 N2 O5



CM 2

CRN 15657-91-7

CMF C18 H17 N O2



CM 3

CRN 80-62-6

CMF C5 H8 O2



- Section cross-reference(s): 73, 76
- ST cadmium sulfide silica nanosphere grafting acrylic polymer;  
electroluminescent acrylic polymer cadmium sulfide silica  
nanosphere; quantum dot conducting polymer hybrid composite nanosphere
- IT Polymerization  
(atom transfer, radical; preparation of electroluminescent  
hybrid CdS/silica/biphenyloxadiazo- carbazolyl methacrylate  
polymer nanocomposites by ATRP on initiator-functionalized  
nanosphere surface)
- IT Conducting polymers  
(biphenyloxadiazo- carbazolyl methacrylate; preparation of  
electroluminescent hybrid CdS/silica/biphenyloxadiazo-  
carbazolyl methacrylate polymer nanocomposites by ATRP on  
initiator-functionalized nanosphere surface)
- IT Hybrid organic-inorganic materials  
Nanocomposites  
Transparent films  
(preparation of electroluminescent hybrid  
CdS/silica/biphenyloxadiazo- carbazolyl methacrylate polymer  
nanocomposites by ATRP on initiator-functionalized nanosphere  
surface)
- IT 265119-85-5, 3-(Dimethylethoxysilyl)propyl-2-bromopropionate  
(ATRP initiator; preparation of electroluminescent hybrid  
CdS/silica/biphenyloxadiazo- carbazolyl methacrylate polymer  
nanocomposites by ATRP on initiator-functionalized nanosphere  
surface)
- IT 9016-45-9, Igepal CO-520  
(emulsion medium; preparation of electroluminescent hybrid  
CdS/silica/biphenyloxadiazo- carbazolyl methacrylate polymer  
nanocomposites by ATRP on initiator-functionalized nanosphere  
surface)
- IT 1306-23-6P, Cadmium sulfide (CdS), preparation 7631-86-9P, Silica,  
preparation  
(preparation of electroluminescent hybrid  
CdS/silica/biphenyloxadiazo- carbazolyl methacrylate polymer  
nanocomposites by ATRP on initiator-functionalized nanosphere  
surface)
- IT 342648-32-2P  
(preparation of electroluminescent hybrid  
CdS/silica/biphenyloxadiazo- carbazolyl methacrylate polymer  
nanocomposites by ATRP on initiator-functionalized nanosphere  
surface)
- IT 78-10-4, TEOS 10325-94-7, Cadmium nitrate 12135-76-1, Ammonium  
sulfide  
(preparation of electroluminescent hybrid  
CdS/silica/biphenyloxadiazo- carbazolyl methacrylate polymer  
nanocomposites by ATRP on initiator-functionalized nanosphere  
surface)
- REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
RE FORMAT

L44 ANSWER 40 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2000:507058 HCAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 133:238675  
 TITLE: Statistical Copolymers with Side-Chain Hole and  
 Electron Transport Groups for Single-Layer  
 Electroluminescent Device Applications  
 AUTHOR(S): Jiang, Xuezhong; Register, Richard A.; Killeen,  
 Kelly A.; Thompson, Mark E.; Pschenitzka, Florian;

CORPORATE SOURCE: Sturm, James C.  
 Department of Chemical Engineering, Princeton  
 University, Princeton, NJ, 08544, USA  
 SOURCE: Chemistry of Materials (2000), 12(9),  
 2542-2549  
 CODEN: CMATEX; ISSN: 0897-4756  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

ED Entered STN: 27 Jul 2000

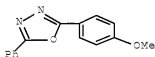
AB New statistical copolymers with bipolar carrier transport abilities were synthesized through free radical copolymerization of N-vinylcarbazole (NVK, hole-transport monomer) with either of two substituted styrenes containing oxadiazole groups, which serve as electron transport monomers: 2-phenyl-5-[(4-vinylphenyl)methoxy]phenyl-1,3,4-oxadiazole, PVO, and 2-(4-tert-butylphenyl)-5-[(4-vinylphenyl)methoxy]phenyl-1,3,4-oxadiazole, BVO. In all cases, the charge transport moieties exist in side groups, and carrier transport proceeds by hopping. Copolymerization yields homogeneous statistical copolymers of widely variable composition and thus tunable carrier transport properties; the copolymers are transparent in the visible region and form good films. Compared with systems where the oxadiazole units are incorporated by simply blending a small-mol. oxadiazole into poly(N-vinylcarbazole), the glass transition temps. of these copolymers are high, and there is no possibility for the oxadiazole units to phase-separate through recrystallization. The glass transition temps. for the copolymers show positive deviations from a harmonic mixing rule, suggesting some interaction between the NVK and BVO residues; however, blends of the homopolymers show limited miscibility at best, indicating that copolymerization is essential to produce a homogeneous material. Incorporating the oxadiazole units reduces the hole transport ability of these copolymers somewhat relative to NVK homopolymer, but single-layer dye-doped devices emitting blue, green, and orange light fabricated from these copolymers all showed good efficiency.

IT 842-79-5P 16712-73-5P, 2-(4-tert-Butylphenyl)-5-(4-methoxyphenyl)-1,3,4-oxadiazole 23133-34-8P  
 292869-69-3P

(monomer synthesis; statistical vinyl copolymers with side-chain carbazole and oxadiazole hole and electron transport groups for single-layer electroluminescent devices)

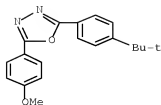
RN 842-79-5 HCAPLUS

CN 1,3,4-Oxadiazole, 2-(4-methoxyphenyl)-5-phenyl- (CA INDEX NAME)



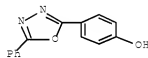
RN 16712-73-5 HCAPLUS

CN 1,3,4-Oxadiazole, 2-[4-(1,1-dimethylethyl)phenyl]-5-(4-methoxyphenyl)-  
 (CA INDEX NAME)



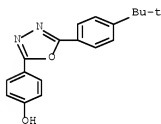
RN 23133-34-8 HCAPLUS

CN Phenol, 4-(5-phenyl-1,3,4-oxadiazol-2-yl)- (CA INDEX NAME)



RN 292869-69-3 HCAPLUS

CN Phenol, 4-[5-[4-(1,1-dimethylethyl)phenyl]-1,3,4-oxadiazol-2-yl]- (CA INDEX NAME)

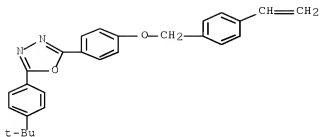


IT 280573-73-1P 292869-70-6P

(monomer; statistical vinyl copolymers with side-chain carbazole and oxadiazole hole and electron transport groups for single-layer electroluminescent devices)

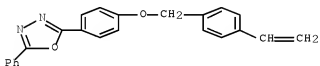
RN 280573-73-1 HCAPLUS

CN 1,3,4-Oxadiazole, 2-[4-(1,1-dimethylethyl)phenyl]-5-[4-[(4-ethenylphenyl)methoxy]phenyl]- (CA INDEX NAME)



RN 292869-70-6 HCAPLUS

CN 1,3,4-Oxadiazole, 2-[4-[(4-ethenylphenyl)methoxy]phenyl]-5-phenyl-  
(CA INDEX NAME)



IT 25067-59-8, Poly(N-vinylcarbazole)  
(statistical vinyl copolymers with side-chain carbazole and  
oxadiazole hole and electron transport groups for single-layer  
electroluminescent devices)

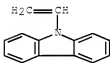
RN 25067-59-8 HCAPLUS

CN 9H-Carbazole, 9-ethenyl-, homopolymer (CA INDEX NAME)

CM 1

CRN 1484-13-5

CMF C14 H11 N



IT 280573-74-2P 292869-71-7P 292869-72-8P  
292869-73-9P

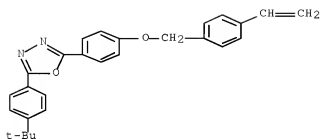
(statistical vinyl copolymers with side-chain carbazole and  
oxadiazole hole and electron transport groups for single-layer  
electroluminescent devices)

RN 280573-74-2 HCAPLUS

CN 9H-Carbazole, 9-ethenyl-, polymer with 2-[4-(1,1-dimethylethyl)phenyl]-  
5-[4-[(4-ethenylphenyl)methoxy]phenyl]-1,3,4-oxadiazole (9CI) (CA  
INDEX NAME)

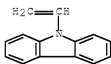
CM 1

CRN 280573-73-1  
CMF C27 H26 N2 O2



CM 2

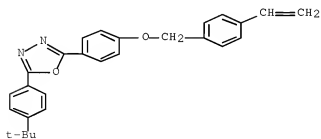
CRN 1484-13-5  
CMF C14 H11 N



RN 292869-71-7 HCAPLUS  
CN 1,3,4-Oxadiazole, 2-[4-(1,1-dimethylethyl)phenyl]-5-[4-[(4-ethenylphenyl)methoxy]phenyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 280573-73-1  
CMF C27 H26 N2 O2



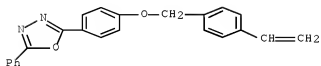
RN 292869-72-8 HCAPLUS  
CN 1,3,4-Oxadiazole, 2-[4-[(4-ethenylphenyl)methoxy]phenyl]-5-phenyl-,

homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 292869-70-6

CMF C23 H18 N2 O2



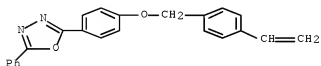
RN 292869-73-9 HCAPLUS

9H-Carbazole, 9-ethenyl-, polymer with 2-[4-[(4-ethenylphenyl)methoxy]phenyl]-5-phenyl-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

CM 1

CRN 292869-70-6

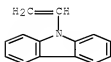
CMF C23 H18 N2 O2



CM 2

CRN 1484-13-5

CMF C14 H11 N



CC 37-3 (Plastics Manufacture and Processing)

Section cross-reference(s): 35, 36, 73, 76

ST oxadiazole carbazole side chain vinyl polymer synthesis; hole electron transport oxadiazole carbazole side chain vinyl polymer; electroluminescent device layer oxadiazole carbazole side chain vinyl polymer

IT Reactivity ratio in polymerization

- (radical; statistical vinyl copolymers with side-chain carbazole and oxadiazole hole and electron transport groups for single-layer electroluminescent devices)
- IT Differential scanning calorimetry  
Electric current-potential relationship  
Electroluminescent devices  
Glass transition  
Heat capacity  
Hopping conductivity  
Luminescence, electroluminescence  
(statistical vinyl copolymers with side-chain carbazole and oxadiazole hole and electron transport groups for single-layer electroluminescent devices)
- IT 38215-36-0, Coumarin 6  
(dopant; statistical vinyl copolymers with side-chain carbazole and oxadiazole hole and electron transport groups for single-layer electroluminescent devices)
- IT 100-07-2, p-Anisoyl chloride 100-47-0, Benzonitrile, reactions 874-90-8, 4-Methoxybenzonitrile 1710-98-1, 4-tert-Butylbenzoyl chloride 26628-22-8, Sodium azide  
(monomer synthesis; statistical vinyl copolymers with side-chain carbazole and oxadiazole hole and electron transport groups for single-layer electroluminescent devices)
- IT 942-79-5P 16712-73-5P, 2-(4-tert-Butylphenyl)-5-(4-methoxyphenyl)-1,3,4-oxadiazole 18039-42-4P, Phenyltetrazole 23133-34-6P 51517-88-5P 292869-69-3P  
(monomer synthesis; statistical vinyl copolymers with side-chain carbazole and oxadiazole hole and electron transport groups for single-layer electroluminescent devices)
- IT 289573-73-1P 292869-70-6P  
(monomer; statistical vinyl copolymers with side-chain carbazole and oxadiazole hole and electron transport groups for single-layer electroluminescent devices)
- IT 50926-11-9, ITO  
(statistical vinyl copolymers with side-chain carbazole and oxadiazole hole and electron transport groups for single-layer electroluminescent devices)
- IT 25067-59-8, Poly(N-vinylcarbazole)  
(statistical vinyl copolymers with side-chain carbazole and oxadiazole hole and electron transport groups for single-layer electroluminescent devices)
- IT 289573-74-2P 292869-71-7P 292869-72-8P 292869-73-9P  
(statistical vinyl copolymers with side-chain carbazole and oxadiazole hole and electron transport groups for single-layer electroluminescent devices)
- REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L44 ANSWER 41 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2000:462266 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 133:274123

TITLE: Printing approaches for large-area color organic LED displays

AUTHOR(S): Sturm, James C.; Pschenitzka, Florian; Hebner, T. R.; Lu, M. H.; Troian, S.

CORPORATE SOURCE: Cent. Photonics Optoelectron. Mater. (POEM), Dep. Electr. Eng., Princeton Univ., Princeton, NJ, USA

SOURCE: Proceedings of SPIE-The International Society for

Optical Engineering (1999), 3797 (Organic  
Light-Emitting Materials and Devices III), 266-274  
CODEN: PSISDG; ISSN: 0277-786X  
SPIE-The International Society for Optical  
Engineering

PUBLISHER:

DOCUMENT TYPE:

LANGUAGE:

Journal

English

ED Entered STN: 10 Jul 2000

AB In this paper the fundamental properties underlying the transfer of organic fluorescent dyes to local areas in polymer thin films by both liquid phase (ink-jet printing) and evaporation/diffusion transport methods are examined, with the goal of achieving full color displays based on organic light emitting diodes made from such polymers. Ink-jet printing offers a simple non-contact method for forming patterns, but a critical issue is the redistribution of dyes and other mols. in the liquid droplet before it dries. Masked large area evaporations allows one to rapidly pattern large areas, but its rate depends on the ability of dyes to diffuse through polymer films.

IT 280573-74-2

(printing approaches for large-area color organic LED displays)

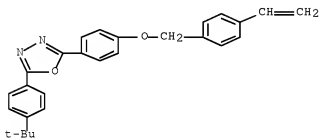
RN 280573-74-2 HCAPLUS

CN 9H-Carbazole, 9-ethenyl-, polymer with 2-[4-(1,1-dimethylethyl)phenyl]-5-[4-[(4-ethenylphenyl)methoxy]phenyl]-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

CM 1

CRN 280573-73-1

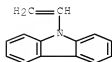
CMF C27 H26 N2 O2



CM 2

CRN 1484-13-5

CMF C14 H11 N



CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other

Reprographic Processes)  
 Section cross-reference(s): 38, 73  
 IT Diffusion  
 Doping  
 Electroluminescent devices  
 Electrooptical imaging devices  
 Evaporation  
 Fluorescent dyes  
 Ink-jet printing  
 (printing approaches for large-area color organic LED displays)  
 IT 91-44-1, Coumarin 47 7385-67-3, Nile Red 38215-36-0, Coumarin 6  
 280573-74-2  
 (printing approaches for large-area color organic LED displays)  
 REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR  
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
 RE FORMAT

L44 ANSWER 42 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2000:388943 HCAPLUS Full-text  
 DOCUMENT NUMBER: 133:24501  
 TITLE: Polymeric electroluminescent material  
 and device using it  
 INVENTOR(S): Sakakibara, Mitsuhiro; Takeuchi, Yasumasa; Ding,  
 Ding Guo  
 PATENT ASSIGNEE(S): JSR Co., Ltd., Japan; Kokusai Kiban Zairyo  
 Kenkyusho K. K.; Dongyuan Electric Co., Ltd.  
 SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000159846	A	20000613	JP 1998-337311	19981127
			<--	
TW 526211	B	20030401	TW 1999-88120576	19991125
			<--	
KR 2000035713	A	20000626	KR 1999-52888	19991126
			<--	
US 6451458	B1	20020917	US 1999-450127	19991126
			<--	
PRIORITY APPLN. INFO.:			JP 1998-337311	A 19981127
			<--	

ED Entered STN: 13 Jun 2000

AB The electroluminescent material is composed of (1) an alternately copolymer unit (AB) of a hole-transporting monomer and an electron-transporting monomer and (2) a hole-transporting monomer-polymerized unit (A) to show the ratio of AB:A 50:50-5:95. The electroluminescent device comprises an anode layer, the above electroluminescent material layer, an electron-transporting layer, and a cathode layer. The device shows high efficiency of emission and improved durability in repeated use.

IT 221327-82-8F  
 (electroluminescent material and device using block copolymer of hole-transporting monomer and electron-transporting monomer)

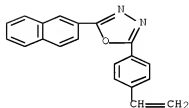
RN 221327-82-8 HCAPLUS

CN 9H-Carbazole, 9-ethenyl-, polymer with 2-(4-ethenylphenyl)-5-(2-naphthalenyl)-1,3,4-oxadiazole, block (9CI) (CA INDEX NAME)

CM 1

CRN 21464-06-2

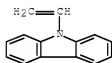
CMF C20 H14 N2 O



CM 2

CRN 1484-13-5

CMF C14 H11 N



IC ICM C08F297-00

ICS C08L025-18; C08L039-04; C08L053-00; H05B033-14; H05B033-22

CC 73-10 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 38

ST electroluminescent device hole electron transporting monomer copolymer; block copolymer electroluminescent vinyl carbazole naphthyl vinylphenyl oxadiazole

IT Electroluminescent devices

(electroluminescent material and device using block

copolymer of hole-transporting monomer and electron-transporting monomer)

IT 25067-59-8P, N-Vinylcarbazole homopolymer 221327-82-8P

(electroluminescent material and device using block

copolymer of hole-transporting monomer and electron-transporting monomer)

L44 ANSWER 43 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2000:377772 HCAPLUS [Full-text](#)

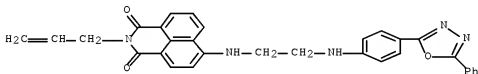
DOCUMENT NUMBER: 133:81004

TITLE: Single-layer electroluminescence device made with novel copolymers containing electron- and hole-transporting moieties

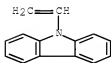
AUTHOR(S): Tian, H.; Zhu, W.; Elschner, A.

CORPORATE SOURCE: Institute of Fine Chemicals, East China University of Science and Technology, Shanghai, 200237, Peop.

SOURCE: Rep. China  
 Synthetic Metals (2000), 111-112,  
 481-483  
 CODEN: SYMEDZ; ISSN: 0379-6779  
 PUBLISHER: Elsevier Science S.A.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 ED Entered STN: 07 Jun 2000  
 AB The synthesis of novel copolymers, in which the electron transporting unit (oxadiazole), hole-transporting unit (carbazole) and emitter (naphthalimide) are incorporated into one copolymer, is reported. The EL spectra of single-layer structure device made by these copolymers has a broad luminescent spectrum, which shows a nearly white light and can be quantified in CIE coordinates as  $x = 0.32$  and  $y = 0.37$ .  
 IT 236127-05-2  
 (single-layer electroluminescence device made with novel copolymers containing electron- and hole-transporting moieties)  
 RN 236127-05-2 HCAPLUS  
 CN 1H-Benz[de]isoquinoline-1,3(2H)-dione, 6-[[2-[[4-(5-phenyl-1,3,4-oxadiazol-2-yl)phenyl]amino]ethyl]amino]-2-(2-propenyl)-, polymer with 9-ethenyl-9H-carbazole (9CI) (CA INDEX NAME)  
 CM 1  
 CRN 215320-70-0  
 CMF C31 H25 N5 O3



CM 2  
 CRN 1484-13-5  
 CMF C14 H11 N

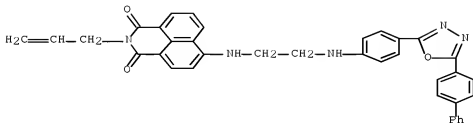


IT 215320-73-3  
 (single-layer electroluminescence device made with novel copolymers containing electron- and hole-transporting moieties)  
 RN 215320-73-3 HCAPLUS  
 CN 1H-Benz[de]isoquinoline-1,3(2H)-dione, 6-[[2-[[4-(5-[1,1'-biphenyl]-4-yl-1,3,4-oxadiazol-2-yl)phenyl]amino]ethyl]amino]-2-(2-propenyl)-, polymer with 9-ethenyl-9H-carbazole (9CI) (CA INDEX NAME)

CM 1

CRN 215320-71-1

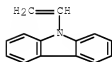
CMF C37 H29 N5 O3



CM 2

CRN 1484-13-5

CMF C14 H11 N



- CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
Section cross-reference(s): 36
- ST electroluminescence device copolymer electron hole transporting moiety
- IT Band structure  
Electroluminescent devices  
Luminescence  
UV and visible spectra  
(single-layer electroluminescence device made with novel copolymers containing electron- and hole-transporting moieties and their properties)
- IT 9003-53-6D, Polystyrene, sulfonated 37271-44-6 50926-11-9, Indium tin oxide  
(single-layer electroluminescence device made with novel copolymers containing electron- and hole-transporting moieties)
- IT 236127-95-2  
(single-layer electroluminescence device made with novel copolymers containing electron- and hole-transporting moieties)
- IT 215320-73-3  
(single-layer electroluminescence device made with novel copolymers containing electron- and hole-transporting moieties)
- IT 94-36-0, Benzoyl peroxide, reactions 1484-13-5, N-Vinyl carbazole  
(single-layer electroluminescence device made with novel copolymers prepared using)

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L44 ANSWER 44 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2000:377753 HCAPLUS Full-text

DOCUMENT NUMBER: 133:135692

TITLE: Efficient and blue light-emitting polymers composed of conjugated main chain

AUTHOR(S): Shim, Hong-Ku; Song, Seung-Yong; Ahn, Taek

CORPORATE SOURCE: Department of Chemistry, Korea Advanced Institute of Science and Technology, Taejon, 305-701, S. Korea

SOURCE: Synthetic Metals (2000), 111-112, 409-412

CODEN: SYMEDZ; ISSN: 0379-6779

PUBLISHER: Elsevier Science S.A.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 07 Jun 2000

AB Poly[o(m,p)-phenylenevinylene-alt-2,5-bis(trimethylsilyl)-p-phenylenevinylene], o(m,p)-PB-TMS-PPV and related derivs. were prepared and their light-emitting properties were studied. The peaks of the photoluminescence spectra of p-PB-TMS-PPV, o-PB-TMS-PPV, and m-PB-TMS-PPV were at 485, 470, and 440, resp. Fully conjugated polymers composed of both electron-transporting oxadiazole and hole-transporting carbazole moieties PPOX-CAR and PMOX-CAR were also prepared. The electroluminescence peaks of those polymers occurred at 495 and 450 nm, resp. Maximum brightness of a test device comprising Al/PPOX-CAR/ITO single layer was 500 cd/m<sup>2</sup> at 20 V.

IT 221615-59-4P, 2,5-Bis(4-tolylene-triphenylphosphonium bromide)-1,3,4-oxadiazole-3,6-Diformyl-9-(2-ethylhexyl)-carbazole copolymer 221615-60-7P, 2,5-Bis(4-tolylene-triphenylphosphonium bromide)-1,3,4-oxadiazole-3,6-Diformyl-9-(2-ethylhexyl)-carbazole copolymer, SRU 221615-62-9P, 2,5-Bis(3-tolylene-triphenylphosphonium bromide)-1,3,4-oxadiazole-3,6-Diformyl-9-(2-ethylhexyl)carbazole copolymer 221615-64-1P, 2,5-Bis(3-tolylene-triphenylphosphonium bromide)-1,3,4-oxadiazole-3,6-Diformyl-9-(2-ethylhexyl)-carbazole copolymer, SRU (preparation and optical properties of blue light-emitting poly(trimethylsilyl-phenylenevinylene)s and derivs. and of oxadiazole/carbazole containing conjugated polymers)

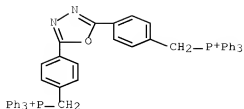
RN 221615-59-4 HCAPLUS

CN Phosphonium, [1,3,4-oxadiazole-2,5-diylbis(4,1-phenylenemethylene)]bis[triphenyl-, dibromide, polymer with 9-(2-ethylhexyl)-9H-carbazole-3,6-dicarboxaldehyde (9CI) (CA INDEX NAME)

CM 1

CRN 221615-56-1

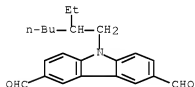
CMF C52 H42 N2 O P2 . 2 Br



CM 2

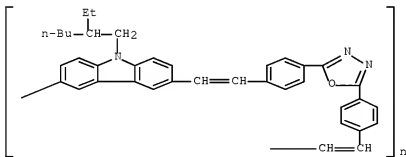
CRN 169051-20-1

CMF C22 H25 N O2



RN 221615-60-7 HCAPLUS

CN Poly[[9-(2-ethylhexyl)-9H-carbazole-3,6-diyl]-1,2-ethenediyl-1,4-phenylene-1,3,4-oxadiazole-2,5-diyl-1,4-phenylene-1,2-ethenediyl] (9CI) (CA INDEX NAME)

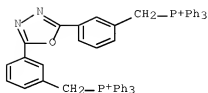


RN 221615-62-9 HCAPLUS

CN Phosphonium, [1,3,4-oxadiazole-2,5-diylbis(3,1-phenylenemethylene)]bis[triphenyl-, dibromide, polymer with 9-(2-ethylhexyl)-9H-carbazole-3,6-dicarboxaldehyde (9CI) (CA INDEX NAME)

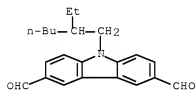
CM 1

CRN 221615-58-3  
 CMF C52 H42 N2 O P2 . 2 Br



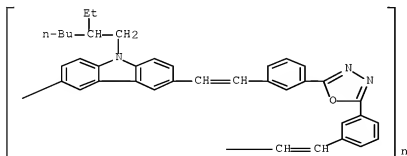
CM 2

CRN 169051-20-1  
 CMF C22 H25 N O2



RN 221615-64-1 HCAPLUS

CN Poly[[9-(2-ethylhexyl)-9H-carbazole-3,6-diyl]-1,2-ethenediyl-1,3-phenylene-1,3,4-oxadiazole-2,5-diyl-1,3-phenylene-1,2-ethenediyl]  
 (9CI) (CA INDEX NAME)



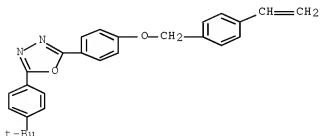
CC 35-7 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 36, 74

ST phenylenevinylene trimethylsilyl copolymer prepn luminescence

- blue light; electroluminescence conjugated polymer  
 oxadiazole carbazole group prepn; polyphenylenevinylene deriv electron  
 hole transport property
- IT Polymers, preparation  
 (conjugated; preparation and optical properties of blue light-  
 emitting poly(trimethylsilyl-phenylenevinylene)s and  
 derivs. and of oxadiazole/carbazole containing conjugated polymers)
- IT Polymer chains  
 (conjugation length; preparation and optical properties of blue  
 light-emitting poly(trimethylsilyl-phenylenevinylene)s and derivs. and of oxadiazole/carbazole containing  
 conjugated polymers)
- IT Polyoxadiazoles  
 Polyoxadiazoles  
 (polyamine-; preparation and optical properties of blue light-  
 emitting poly(trimethylsilyl-phenylenevinylene)s and  
 derivs. and of oxadiazole/carbazole containing conjugated polymers)
- IT Polyamines  
 Polyamines  
 (polyoxadiazole-; preparation and optical properties of blue  
 light-emitting poly(trimethylsilyl-phenylenevinylene)s and derivs. and of oxadiazole/carbazole containing  
 conjugated polymers)
- IT Electron transport  
 Hole transport  
 Luminescence, electroluminescence
- Optical absorption  
 (preparation and optical properties of blue light-  
 emitting poly(trimethylsilyl-phenylenevinylene)s and  
 derivs. and of oxadiazole/carbazole containing conjugated polymers)
- IT Poly(arylenealkenylenes)  
 (trimethylsilyl containing; preparation and optical properties of blue  
 light-emitting poly(trimethylsilyl-phenylenevinylene)s and derivs. and of oxadiazole/carbazole containing  
 conjugated polymers)
- IT 221615-59-4P, 2,5-Bis(4-tolylene-triphenylphosphonium  
 bromide)-1,3,4-oxadiazole-3,6-Diformyl-9-(2-ethylhexyl)-carbazole  
 copolymer 221615-60-7P, 2,5-Bis(4-tolylene-  
 triphenylphosphonium bromide)-1,3,4-oxadiazole-3,6-Diformyl-9-(2-  
 ethylhexyl)-carbazole copolymer, SRU 221615-62-9P,  
 2,5-Bis(3-tolylene-triphenylphosphonium bromide)-1,3,4-oxadiazole-3,6-  
 Diformyl-9-(2-ethylhexyl)carbazole copolymer 221615-64-1P,  
 2,5-Bis(3-tolylene-triphenylphosphonium bromide)-1,3,4-oxadiazole-3,6-  
 Diformyl-9-(2-ethylhexyl)-carbazole copolymer, SRU 228273-31-2P  
 228273-32-3P 228273-33-4P 228273-34-5P 228273-35-6P  
 228273-36-7P  
 (preparation and optical properties of blue light-  
 emitting poly(trimethylsilyl-phenylenevinylene)s and  
 derivs. and of oxadiazole/carbazole containing conjugated polymers)
- REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR  
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
 RE FORMAT
- L44 ANSWER 45 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2000:346330 HCAPLUS Full-text  
 DOCUMENT NUMBER: 133:89861  
 TITLE: Doped organic light-emitting  
 diodes based on random copolymers containing both  
 hole and electron transport groups  
 AUTHOR(S): Jiang, Xuezhong; Register, Richard A.;

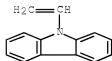
Pschenitzka, Florian; Sturm, James C.; Killeen, Kelly A.; Thompson, Mark E.  
 CORPORATE SOURCE: Department of Chemical Engineering, Princeton University, Princeton, NJ, 08544, USA  
 SOURCE: Materials Research Society Symposium Proceedings ( 2000), 558(Flat-Panel Displays and Sensors--Principles, Materials and Processes), 433-438  
 CODEN: MRSPDH; ISSN: 0272-9172  
 PUBLISHER: Materials Research Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 ED Entered STN: 25 May 2000  
 AB Hole and electron transport groups were incorporated into a single copolymer to avoid recrystn. and phase segregation, which could occur if two sep. polymers were used. The polymers were prepared by free radical copolymn. of the electron-donating monomer N-vinylcarbazole (NVK) with the electron-withdrawing monomer 2-(4-tert-butylphenyl)-5-[(4'-vinyl)phenylmethoxy]phenyl)-1,3,4-oxadiazole (BVO). The radical reactivity ratio of the two monomers is rNVK = 0.052 and rBVO = 12. The copolymers are transparent in the visible region, homogeneous as characterized by both GPC and DSC, and have good thermal stability. The copolymers were evaluated for use in organic light-emitting diodes (OLEDs). External quantum efficiency of 0.07%, 0.3% and 0.4% was achieved by test structures of ITO/COP:C47/Mg:Ag, ITO/COP:C6/Mg:Ag and ITO/COP:NR/Mg:Ag, resp., where COP stands for copolymer, C47 for Coumarin 47, C6 for Coumarin 6, and NR for Nile Red. The introduction of the oxadiazole group balances the injection of holes and electrons by decreasing the hole injection and transport ability and enhancing the electron injection and transport ability of the copolymers relative to PVK.  
 IT 280573-74-2P, 2-(4-tert-Butylphenyl)-5-{4-[(4'-vinyl)phenylmethoxy] phenyl}-1,3,4-oxadiazole-N-vinylcarbazole copolymer  
 (preparation of vinylcarbazole-butylphenyloxadiazole copolymers with improved carrier transport and performance of LEDs based on copolymer/dye sensitizer structures)  
 RN 280573-74-2 HCAPLUS  
 CN 9H-Carbazole, 9-ethenyl-, polymer with 2-[4-(1,1-dimethylethyl)phenyl]-5-[4-[(4-ethenylphenyl)methoxy]phenyl]-1,3,4-oxadiazole (9CI) (CA INDEX NAME)  
 CM 1  
 CRN 280573-73-1  
 CMF C27 H26 N2 O2



CM 2

CRN 1484-13-5

CMF C14 H11 N



CC 35-4 (Chemistry of Synthetic High Polymers)  
Section cross-reference(s): 36, 73

ST vinylcarbazole butylphenyloxadiazole copolymer prepn radical polymn;  
electron hole transport group copolymer thermal stability; charge  
injection transport oxadiazole vinylcarbazole copolymer; light  
emitting diode polymer oxadiazole vinylcarbazole

IT Electroluminescent devices  
Electron transport  
Hole transport  
Luminescence, electroluminescence  
Reactivity ratio in polymerization  
(preparation of vinylcarbazole-butylphenyloxadiazole copolymers with  
improved carrier transport and performance of LEDs based on  
copolymer/dye sensitizer structures)

IT 290573-74-2P, 2-(4-tert-Butylphenyl)-5-[4-[(4'-  
vinylphenylmethoxy) phenyl]-1,3,4-oxadiazole-N-vinylcarbazole  
copolymer  
(preparation of vinylcarbazole-butylphenyloxadiazole copolymers with  
improved carrier transport and performance of LEDs based on  
copolymer/dye sensitizer structures)

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
RE FORMAT

L44 ANSWER 46 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2000:126882 HCAPLUS Full-text

DOCUMENT NUMBER: 132:294268

TITLE: Carrier transport and high-efficiency  
electroluminescence properties of  
copolymer thin films

AUTHOR(S): Chen, B.; Liu, Y.; Lee, C. S.; Yu, G.; Lee, S. T.;  
Li, H.; Gambling, W. A.; Zhu, D.; Tian, H.; Zhu,  
W.

CORPORATE SOURCE: Centre of Super-Diamond and Advanced Films  
(COSDAF) & Department of Physics and Materials  
Science, City University of Hong Kong, Hong Kong,  
Peop. Rep. China

SOURCE: Thin Solid Films (2000), 363(1,2),  
173-177  
CODEN: THSFAP; ISSN: 0040-6090

PUBLISHER: Elsevier Science S.A.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 24 Feb 2000

AB A novel copolymer with moieties capable of charge transport and electroluminescence was synthesized. The drift mobilities of electron and hole in the spin-coated films of the copolymer on silicon substrate have been determined by the time-of-flight technique. The shape of the photo-current curves obtained for the transport of both electron and hole is typical for dispersive transport in organic polymers. Under an elec. field strength of  $5.0 \times 10^5$  V/cm, the drift mobility of electron and hole is  $4.78 \times 10^{-6}$  and  $3.46 \times 10^{-6}$  cm<sup>2</sup>/V s, resp. A high-efficiency electroluminescent device with the bi-layer structure of ITO/copolymer/2-(4-biphenyl)-5-(4-tert-butylphenyl)-1,3,4-oxadiazole (PBD) /LiF/Al was fabricated. The device emitted a bright blue-green light peaking at wavelength of 496 nm, originating from copolymer with a maximum current efficiency of 10 cd/A and a maximum luminescence efficiency of 2.9 lm/W at the DC drive voltage of 12 V.

IT 242492-03-1

(LED component; carrier transport and high-efficiency electroluminescence properties of copolymer thin films)

RN 242492-03-1 HCAPLUS

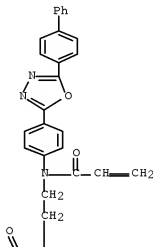
CN 2-Propenoic acid, 2-[[2-[2-[[4-(5-[1,1'-biphenyl]-4-yl)-1,3,4-oxadiazol-2-yl]phenyl](1-oxo-2-propenyl)amino]ethyl]-2,3-dihydro-1,3-dioxo-1H-benz[de]isoquinolin-6-yl]amino]ethyl ester, polymer with 9-ethenyl-9H-carbazole (9CI) (CA INDEX NAME)

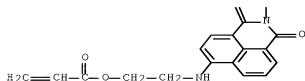
CM 1

CRN 236127-03-0

CMF C42 H33 N5 O6

PAGE 1-A

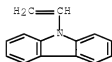




CM 2

CRN 1484-13-5

CMF C14 H11 N



CC 36-5 (Physical Properties of Synthetic High Polymers)  
 Section cross-reference(s): 76  
 ST electroluminescent polymer device carrier transport;  
 electroluminescence polymer film carrier transport  
 IT Electroluminescent devices  
 Hole mobility  
 Luminescence, electroluminescence  
 (carrier transport and high-efficiency electroluminescence  
 properties of copolymer thin films)  
 IT Electric current carriers  
 (transport; carrier transport and high-efficiency  
 electroluminescence properties of copolymer thin films)  
 IT 7429-90-5, Aluminum, uses 7789-24-4, Lithium fluoride, uses  
 15082-28-7, 2-(4-Biphenyl)-5-(4-tert-butylphenyl)-1,3,4-oxadiazole  
 50926-11-9, ITO  
 (LED component; carrier transport and high-efficiency  
 electroluminescence properties of copolymer thin films)  
 IT 242492-03-1  
 (LED component; carrier transport and high-efficiency  
 electroluminescence properties of copolymer thin films)  
 REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR  
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
 RE FORMAT

L44 ANSWER 47 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1999:456096 HCAPLUS Full-text

DOCUMENT NUMBER: 131:214978

TITLE: Synthesis and luminescence of novel  
emitting copolymersAUTHOR(S): Hu, Cheng; Zhu, Weihong; Lin, Wenqiang; Tian, He  
 CORPORATE SOURCE: Institute of Fine Chemicals, East China University  
 of Science and Technology, Shanghai, 200237, Peop.  
 Rep. China

SOURCE: Synthetic Metals (1999), 102(1-3),

1129-1130

CODEN: SYMEDZ; ISSN: 0379-6779

PUBLISHER: Elsevier Science S.A.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered SIN: 27 Jul 1999

AB Four novel dyad monomers containing two copolymerizable groups have been synthesized. They were copolymerized with N-vinyl carbazole and would be used as electroluminescent materials, in which there are three functional segments: 1,8-naphthalimide as emitter, oxadiazole as electron-transporting unit and carbazole as hole-transporting segments. The effective intramolecular singlet energy transfer from oxadiazole or carbazole to naphthalimide was observed from the emission spectra of the dyad monomers and copolymers.

IT 242492-02-0P 242492-03-1P 242492-04-2P

242492-05-3P

(synthesis and luminescence of N-vinylcarbazole copolymers with acrylates containing oxadiazole and naphthalimide in their side chains)

RN 242492-02-0 HCAPLUS

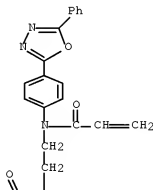
CN 2-Propenoic acid, 2-[[[2,3-dihydro-1,3-dioxo-2-[2-[(1-oxo-2-propenyl)[4-(5-phenyl-1,3,4-oxadiazol-2-yl)phenyl]amino]ethyl]-1H-benz[de]isoquinolin-6-yl]amino]ethyl ester, polymer with 9-ethenyl-9H-carbazole (9CI) (CA INDEX NAME)

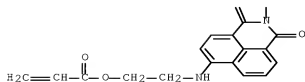
CM 1

CRN 236127-01-8

CMF C36 H29 N5 O6

PAGE 1-A

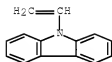




CM 2

CRN 1484-13-5

CMF C14 H11 N



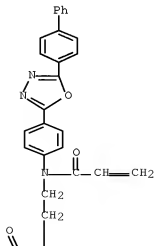
RN 242492-03-1 HCAPLUS

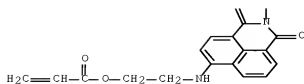
CN 2-Propenoic acid, 2-[[2-[2-[[4-(5-[1,1'-biphenyl]-4-yl)-1,3,4-oxadiazol-2-yl]phenyl](1-oxo-2-propenyl)amino]ethyl]-2,3-dihydro-1,3-dioxo-1H-benz[de]isoquinolin-6-yl]amino]ethyl ester, polymer with 9-ethenyl-9H-carbazole (9CI) (CA INDEX NAME)

CM 1

CRN 236127-03-0

CMF C42 H33 N5 O6

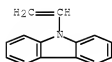




CM 2

CRN 1484-13-5

CMF C14 H11 N



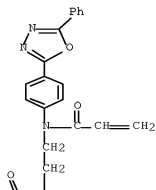
RN 242492-04-2 HCAPLUS

CN 2-Propenoic acid, 2-[[[2,3-dihydro-1,3-dioxo-2-[2-[(1-oxo-2-propenyl)[4-(5-phenyl-1,3,4-oxadiazol-2-yl)phenyl]amino]ethyl]-1H-benz[de]isoquinolin-6-yl]amino]-1-methylethyl ester, polymer with 9-ethenyl-9H-carbazole (9CI) (CA INDEX NAME)

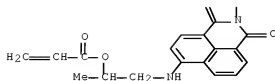
CM 1

CRN 236127-02-9

CMF C37 H31 N5 O6



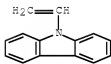
PAGE 2-A



CM 2

CRN 1484-13-5

CMF C14 H11 N



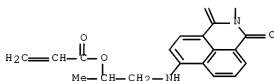
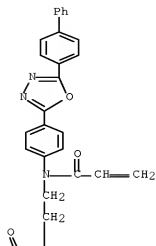
RN 242492-05-3 HCAPLUS

CN 2-Propenoic acid, 2-[[[2-[2-[[4-(5-[1,1'-biphenyl]-4-yl-1,3,4-oxadiazol-2-yl)phenyl](1-oxo-2-propenyl)amino]ethyl]-2,3-dihydro-1,3-dioxo-1H-benz[de]isoquinolin-6-yl]amino]-1-methylethyl ester, polymer with 9-ethenyl-9H-carbazole (9CI) (CA INDEX NAME)

CM 1

CRN 236127-04-1

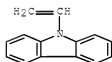
CMF C43 H35 N5 O6



CM 2

CRN 1484-13-5

CMF C14 H11 N



CC 37-3 (Plastics Manufacture and Processing)

Section cross-reference(s): 73, 76

ST oxadiazole naphthalimide pendent acrylate vinylcarbazole copolymer

synthesis fluorescence electroluminescence

IT Fluorescence

Luminescence, electroluminescence

UV and visible spectra

(synthesis and luminescence of N-vinylcarbazole

copolymers with acrylates containing oxadiazole and naphthalimide in

their side chains)

IT 814-68-6, 2-Propenoyl chloride 242491-98-1 242491-99-2  
 242492-00-8 242492-01-9  
 (monomer synthesis; synthesis and luminescence of  
 N-vinylcarbazole copolymers with acrylates containing oxadiazole and  
 naphthalimide in their side chains)

IT 236127-01-8P 236127-02-9P 236127-03-0P 236127-04-1P  
 (monomer; synthesis and luminescence of N-vinylcarbazole  
 copolymers with acrylates containing oxadiazole and naphthalimide in  
 their side chains)

IT 242492-02-0P 242492-03-1P 242492-04-2P  
 242492-05-3P  
 (synthesis and luminescence of N-vinylcarbazole  
 copolymers with acrylates containing oxadiazole and naphthalimide in  
 their side chains)

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR  
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
 RE FORMAT

L44 ANSWER 48 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1999:439059 HCAPLUS Full-text

DOCUMENT NUMBER: 131:229257

TITLE: Spectroscopic and electrochemical study of a novel  
 blue electroluminescent p-n diblock  
 conjugated copolymer

AUTHOR(S): Meng, Hong; Chen, Zhi-Kuan; Huang, Wei  
 CORPORATE SOURCE: Institute of Materials Research and Engineering  
 (IMRE), National University of Singapore,  
 Singapore, 119260, Singapore

SOURCE: Journal of Physical Chemistry B (1999),  
 103(31), 6429-6433  
 CODEN: JPCBFF; ISSN: 1089-5647

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 19 Jul 1999

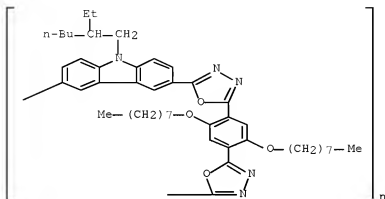
AB A novel p-n diblock copolymer, poly[N-(2'-ethylhexyl)-carbazole-3,6- diyl-  
 1''',3''',4'''-oxadiazole-2'',5''-diyl-2''',5'''-dioctyloxy- 1''',4'''-phenylene-  
 1''',3''',4''',5'''-oxadiazole-2''',5'''-diyl] (PCOPO) composed of an  
 electron-rich moiety carbazole and an electron-deficient unit aromatic  
 oxadiazole was synthesized aiming at balancing the abilities of conducting  
 holes and electrons. Electrochem. analyses by cyclic voltammetry indicate that  
 PCOPO can be reversibly n-doped and irreversibly p-doped. The cathodic sweep  
 reveals that the reduction involves two-electron process with respect to the  
 successive reduction of oxadiazole rings and carbazole moieties in the polymer  
 chain. The highest occupied MOs (HOMO) and lowest unoccupied MOs (LUMO)  
 energy levels of the polymer are estimated to be 5.60 and 2.66 eV from the  
 onset of oxidation and reduction potentials, resp. The band gap energy of the  
 polymer estimated by the electrochem. measurement (2.94 eV) is in good  
 agreement with that from the optical method (2.82 eV). The photoluminescence  
 (PL) of film samples shows that the polymer emits greenish-blue light (475  
 nm). The PL of solns. is concentration-dependent. In dilute solns., the PL  
 emission is from the singlet exciton transition, whereas in the concentrated  
 solns., it is mainly originated from excimers. The excimer formation is  
 related to the incorporation of oxadiazole rings into the polymer backbone,  
 which can enhance the interchain interactions. Both photophys. and electronic  
 properties demonstrate that the polymer may be a promising candidate material  
 for the fabrication of an efficient blue light-emitting device.

IT 244936-31-5P  
 (spectroscopic and electrochem. study of novel blue

electroluminescent p-n conjugated copolymer)

RN 244036-31-5 HCAPLUS

CN Poly[9-(2-ethylhexyl)-9H-carbazole-3,6-diyl]-1,3,4-oxadiazole-2,5-diyl [2,5-bis(octyloxy)-1,4-phenylene]-1,3,4-oxadiazole-2,5-diyl] (9CI)  
(CA INDEX NAME)



CC 36-5 (Physical Properties of Synthetic High Polymers)

Section cross-reference(s): 35, 73, 76

ST luminescence soln exciton excimer conjugated carbazole contg  
polyoxadiazole; HOMO LUMO band gap redn potential carbazole contg  
polyoxadiazole

IT Excimer

(concentrated solution luminescence; spectroscopic and  
electrochem. study of novel blue electroluminescent p-n  
conjugated copolymer)

IT Exciton luminescence

(diluted solns.; spectroscopic and electrochem. study of novel blue  
electroluminescent p-n conjugated copolymer)

IT Doping

(n- and p-; spectroscopic and electrochem. study of novel blue  
electroluminescent p-n conjugated copolymer)

IT Band gap

Conducting polymers

Cyclic voltammetry

FMO (molecular orbital)

IR spectra

Luminescence

luminescence, electroluminescence

UV and visible spectra

(spectroscopic and electrochem. study of novel blue  
electroluminescent p-n conjugated copolymer)

IT Reduction

(two-electron, electrochem.; spectroscopic and electrochem. study  
of novel blue electroluminescent p-n conjugated  
copolymer)

IT 244036-30-4P

(pre-polymer; spectroscopic and electrochem. study of novel blue  
electroluminescent p-n conjugated copolymer)

IT 244036-29-1P 244036-31-5P

(spectroscopic and electrochem. study of novel blue  
electroluminescent p-n conjugated copolymer)

REFERENCE COUNT: 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L44 ANSWER 49 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1999:394317 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 131:243697

TITLE: Synthesis and characterization of a novel blue electroluminescent polymer constituted of alternating carbazole and aromatic oxadiazole units

AUTHOR(S): Meng, Hong; Chen, Zhi-Kuan; Liu, Xiao-Ling; Lai, Yee-Hing; Chua, Soo-Jin; Huang, Wei

CORPORATE SOURCE: Institute of Materials Research and Engineering (IMRE), National University of Singapore, Singapore

SOURCE: Physical Chemistry Chemical Physics (1999), 1(13), 3123-3127

CODEN: PPCPFQ; ISSN: 1463-9076

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

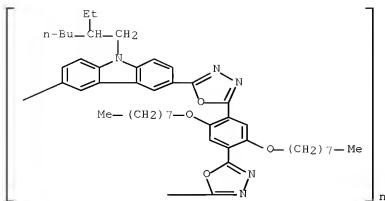
ED Entered STN: 28 Jun 1999

AB A polymer containing alternating carbazole and arylenebisoxadiazole units was prepared by polymerizing 2,5-bis(octyloxy)terephthaloyl hydrazide with 9-(2-ethylhexyl)-3,6-carbazoledicarbonyl chloride followed by cyclodehydration. The structure of the polymer was confirmed by FTIR, NMR, and elemental anal. The polymer is partially soluble in THF, CHCl<sub>3</sub>, xylene, and DMSO, and completely soluble in CHCl<sub>3</sub> containing a small amount TFA. The optical and electronic properties of the polymer were investigated by UV-visible absorption and photoluminescence spectroscopy as well as cyclic voltammetry. The polymer films emit greenish-blue light (475 nm). The bandgap energy of the polymer was estimated optically (2.82 eV) and electrochem. (2.94 eV). Both p-doping and n-doping processes are observed in cyclic voltammetric investigations. The HOMO and LUMO energies of the polymer were estimated to be 5.60 and 2.66 eV, resp. The photophys. and electronic properties as well as the preliminary electroluminescent device result of the polymer demonstrate that it is a promising candidate material for the fabrication of a polymer light-emitting device.

IT 244036-31-5P  
(preparation and properties of)

RN 244036-31-5 HCAPLUS

CN Poly[[9-(2-ethylhexyl)-9H-carbazole-3,6-diyl]-1,3,4-oxadiazole-2,5-diyl[2,5-bis(octyloxy)-1,4-phenylene]-1,3,4-oxadiazole-2,5-diyl] (9CI)  
(CA INDEX NAME)



CC 35-5 (Chemistry of Synthetic High Polymers)  
 Section cross-reference(s): 73, 76  
 ST oxadiazole contg carbazole copolymer prepn property;  
 electroluminescence oxadiazole contg carbazole copolymer;  
 bandgap energy oxadiazole contg carbazole copolymer; mol orbital  
 oxadiazole contg carbazole copolymer  
 IT Electroluminescent devices  
 (alternating arylenbisoxadiazole/carbazole group-containing polymer as  
 material for)  
 IT Band gap  
 Cyclic voltammetry  
 HOMO (molecular orbital)  
 LUMO (molecular orbital)  
 luminescence, electroluminescence  
 (of alternating arylenbisoxadiazole/carbazole group-containing  
 polymer)  
 IT 244036-29-1DP, cyclodehydrated 244036-31-5P  
 (preparation and properties of)  
 REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR  
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
 RE FORMAT

L44 ANSWER 50 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 1999:367081 HCAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 131:144906  
 TITLE: Synthesis and electroluminescence of  
 novel copolymers with charges transporting  
 moieties  
 AUTHOR(S): Zhu, Weihong; Tian, He; Elschner, Andreas  
 CORPORATE SOURCE: Institute of Fine Chemicals, East China University of  
 Science and Technology, Shanghai, 200237, Peop.  
 Rep. China  
 SOURCE: Chemistry Letters (1999), (6), 501-502  
 CODEN: CMLTAG; ISSN: 0366-7022  
 PUBLISHER: Chemical Society of Japan  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 ED Entered STN: 15 Jun 1999  
 AB The synthesis of novel copolymers, in which the electron transporting unit  
 (oxadiazole), hole transporting unit (carbazole) and emitter (naphthalimide)  
 are incorporated into one copolymer, has been reported. It was demonstrated  
 that EL spectra of device made by these copolymers has a broad luminescent

spectrum with range of 450-650 nm, which can be quantified in CIE coordinates as  $x = 0.32$  and  $y = 0.37$ .

IT 215320-73-3 236127-05-2

(synthesis and electroluminescence of novel copolymers with charges transporting moieties)

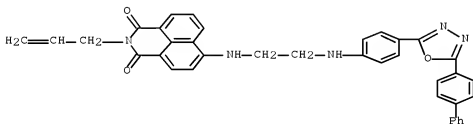
RN 215320-73-3 HCAPLUS

CN 1H-Benz[de]isoquinoline-1,3(2H)-dione, 6-[[2-[[4-(5-[1,1'-biphenyl]-4-yl)-1,3,4-oxadiazol-2-yl]phenyl]amino]ethyl]amino]-2-(2-propenyl)-, polymer with 9-ethenyl-9H-carbazole (9CI) (CA INDEX NAME)

CM 1

CRN 215320-71-1

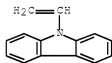
CMF C37 H29 N5 O3



CM 2

CRN 1484-13-5

CMF C14 H11 N



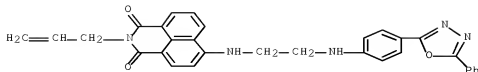
RN 236127-05-2 HCAPLUS

CN 1H-Benz[de]isoquinoline-1,3(2H)-dione, 6-[[2-[[4-(5-phenyl-1,3,4-oxadiazol-2-yl)phenyl]amino]ethyl]amino]-2-(2-propenyl)-, polymer with 9-ethenyl-9H-carbazole (9CI) (CA INDEX NAME)

CM 1

CRN 215320-70-0

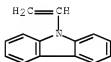
CMF C31 H25 N5 O3



CM 2

CRN 1484-13-5

CMF C14 H11 N



- CC 35-4 (Chemistry of Synthetic High Polymers)  
Section cross-reference(s): 36, 73, 76
- ST electroluminescent device oxadiazole carbazole naphthalimide  
contg polymer current voltage; electron hole transport oxadiazole  
carbazole naphthalimide contg polymer synthesis
- IT Glass, uses  
(electrode; synthesis and electroluminescence of novel  
copolymers with charges transporting moieties)
- IT Fluorescence  
(of the monomers; synthesis and electroluminescence of  
novel copolymers with charges transporting moieties)
- IT Brightening  
Electric current-potential relationship  
Electroluminescent devices  
Electron transport  
Hole transport  
Luminescence, electroluminescence  
(synthesis and electroluminescence of novel copolymers  
with charges transporting moieties)
- IT 7439-95-4, Magnesium, uses 7440-22-4, Silver, uses 50926-11-9, ITO  
(electrode; synthesis and electroluminescence of novel  
copolymers with charges transporting moieties)
- IT 236127-01-8 236127-02-9 236127-03-0 236127-04-1  
(monomer; synthesis and electroluminescence of novel  
copolymers with charges transporting moieties)
- IT 215320-73-3 236127-05-2  
(synthesis and electroluminescence of novel copolymers  
with charges transporting moieties)
- REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
RE FORMAT

L44 ANSWER 51 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 1999:301119 HCAPLUS Full-text  
DOCUMENT NUMBER: 131:59394

TITLE: Synthesis of novel copolymeric dyad  
electroluminescent materials

AUTHOR(S): Hu, Cheng; Zhu, Weihong; Tian, He

CORPORATE SOURCE: Inst. of Fine Chem., East China Univ. of Sci. & Technol., Shanghai, 200237, Peop. Rep. China

SOURCE: Gaofenzi Xuebao (1999), (2), 232-235  
CODEN: GAXUE9; ISSN: 1000-3304

PUBLISHER: Kexue Chubanshe

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

ED Entered STN: 18 May 1999

AB Two novel electroluminescent copolymers have been synthesized, in which there are three functions: 1,8-naphthalimide as emitting moiety, oxadiazole as electron transporting moiety and PVK as hole transporting moiety. The dyad monomers were characterized by <sup>1</sup>H-NMR and MS spectra. Their UV-Vis spectra indicate that there is little or no interaction between the two chromophores in their ground state. However, the fluorescence emission of oxadiazole and vinylcarbazole were quenched in these copolymers, which shows in the excited state there exists very effective intramol. singlet-singlet energy transfer (Intra-SSET) from oxadiazole and vinylcarbazole to 1,8-naphthalimide.

IT 228117-42-8P  
(preparation of copolymeric dyad electroluminescent material)

RN 228117-42-8 HCAPLUS

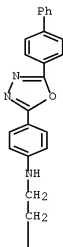
CN 1H-Benz[de]isoquinoline-1,3(2H)-dione, 5-[[2-[[4-(5-[1,1'-biphenyl]-4-yl)-1,3,4-oxadiazol-2-yl]phenyl]amino]ethyl]amino]-6-nitro-2-(2-propenyl)-, polymer with 9-ethenyl-9H-carbazole (9CI) (CA INDEX NAME)

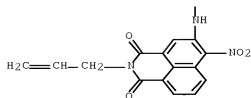
CM 1

CRN 228117-41-7

CMF C37 H28 N6 O5

PAGE 1-A

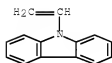




CM 2

CRN 1484-13-5

CMF C14 H11 N



CC 37-3 (Plastics Manufacture and Processing)  
 ST vinyl carbazole copolymer dyad electroluminescent material  
 IT 100945-56-0P 189183-96-8P  
 (intermediate; preparation of copolymeric dyad  
 electroluminescent material)  
 IT 228117-40-6P 228117-41-7P  
 (monomer; preparation of copolymeric dyad electroluminescent  
 material)  
 IT 228117-42-8P  
 (preparation of copolymeric dyad electroluminescent material)  
 IT 107-11-9, 2-Propen-1-amine 6642-29-1 186026-93-7  
 (starting material; preparation of copolymeric dyad  
 electroluminescent material)  
 IT 228117-39-3P  
 (starting material; preparation of copolymeric dyad  
 electroluminescent material)

L44 ANSWER 52 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1999:236191 HCAPLUS Full-text

DOCUMENT NUMBER: 131:88268

TITLE: Synthesis and electrochemical characterization of  
 a new polymer constituted of alternating carbazole  
 and oxadiazole moieties

AUTHOR(S): Meng, Hong; Chen, Zhi-Kuan; Yu, Wang-Lin; Pei,  
 Jian; Liu, Xiao-Ling; Lai, Yee-Hing; Huang, Wei

CORPORATE SOURCE: Institute of Materials Research and Engineering  
 (IMRE), National University of Singapore,  
 Singapore, Singapore

SOURCE: Synthetic Metals (1999), 100(3), 297-301

CODEN: SYMEDZ; ISSN: 0379-6779

PUBLISHER: Elsevier Science S.A.

DOCUMENT TYPE: Journal

LANGUAGE: English

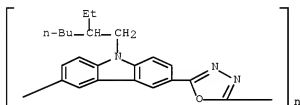
ED Entered STN: 16 Apr 1999

AB The synthesis and electrochem. characterization are described of a copolymer containing an electron rich carbazole moiety and an electron deficient oxadiazole unit, poly[N-(2'-ethylhexyl)-carbazole-3,6-diyl-1'',3'',4''-oxadiazole-2'',5''-diyl] (PCO). PCO is soluble in THF, CHCl<sub>3</sub>, xylene, and DMSO. The structure of the polymer is confirmed by FTIR, NMR, and elemental anal. The optical and electronic properties of the polymer were studied by UV-Vis absorption spectroscopy and photoluminescence spectroscopy and cyclic voltammetry. The PCO films emit greenish-blue light ( $\lambda_{\text{max}}$  485 nm) upon UV excitation. Both p-doping and n-doping processes were observed by cyclic voltammetry. A comparison between the properties of polycarbazole and polycarbazole-oxadiazole is presented.

IT 229626-82-8P  
(preparation and electronic structure and blue light emission by poly(carbazole-oxadiazole) conjugated polymer)

RN 229626-82-8 HCAPLUS

CN Poly[[9-(2-(ethylhexyl)-9H-carbazole-3,6-diyl]-1,3,4-oxadiazole-2,5-diyl] (9CI) (CA INDEX NAME)



CC 35-7 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 74

ST polycarbazole oxadiazole prepn electronic structure photoexcitation;  
conjugated polycarbazole oxadiazole blue light

emission

luminescence

(blue light; preparation and electronic structure and blue light

emission by poly(carbazole-oxadiazole) conjugated polymer)

IT Polymers, preparation

(conjugated; preparation and electronic structure and blue light

emission by poly(carbazole-oxadiazole) conjugated polymer)

IT Polymers, preparation

(polycarbazoles, oxadiazole containing; preparation and electronic

structure

and blue light emission by poly(carbazole-

oxadiazole) conjugated polymer)

IT Electron configuration

Optical absorption

Photoexcitation

(preparation and electronic structure and blue light

emission by poly(carbazole-oxadiazole) conjugated polymer)

IT 187148-77-2P, N-(2-Ethylhexyl)carbazole 229626-78-2P,  
3,6-Bis(N,N-dimethylcarbamoyl)-9-(2-ethylhexyl)carbazole

229626-79-3P, N-(2-Ethylhexyl)carbazole-3,6-dicarboxylic acid  
(intermediate; preparation and electronic structure and blue

light emission by poly(carbazole-oxadiazole)

conjugated polymer)

IT 229626-80-6P, N-(2-Ethylhexyl)carbazole-3,6-dicarbonyl chloride

(monomer; preparation and electronic structure and blue light emission by poly(carbazole-oxadiazole) conjugated polymer)

IT 229626-81-7P 229626-82-8P  
(preparation and electronic structure and blue light emission by poly(carbazole-oxadiazole) conjugated polymer)

IT 79-44-7, n,N-Dimethylcarbamoyl chloride 86-74-8, 9H-Carbazole  
7647-01-0, Hydrochloric acid, reactions 7719-09-7, Thionyl chloride  
18908-66-2, 2-Ethylhexylbromide  
(preparation and electronic structure and blue light emission by poly(carbazole-oxadiazole) conjugated polymer)

REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L44 ANSWER 53 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 1999:142434 HCAPLUS Full-text  
DOCUMENT NUMBER: 130:238011  
TITLE: Block copolymers suitable for durable organic electroluminescence elements with high luminous efficiency, and their manufacture

INVENTOR(S): Sakakihara, Mitsuhiko; Takeuchi, Ansei; Ding, Ding Guo

PATENT ASSIGNEE(S): JSR Co., Ltd., Japan; Kokusai Kiban Zairyo Kenkyusho K. K.; Dongyuan Electric Co., Ltd.

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.  
CODEN: JKXXAF

DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11060660	A	19990302	JP 1997-216486	19970811
			<--	
US 6007928	A	19991228	US 1998-131691	19980810
			<--	
PRIORITY APPLN. INFO.:			JP 1997-216486	A 19970811
			<--	

ED Entered STN: 05 Mar 1999

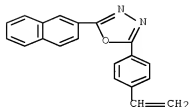
AB Title block copolymers comprise N-vinylcarbazole (I) homopolymer blocks (A) and 2-( $\beta$ -naphthyl)-5-(4-vinylphenyl)-oxadiazole (II) homopolymer blocks (B) at molar ratio of A/B (0.1-99.9)/(0.1-99.9) and are manufactured by living cationic polymerization or living radical polymerization. Thus, 15.5 parts I was polymerized in CH<sub>2</sub>Cl<sub>2</sub> using HI-ZnI<sub>2</sub> and subsequently copolymerized with 1.5 parts II to give 95:5 I-II block copolymer showing average-mol.-weight calculated as polystyrene 63,800. Then, the block copolymer was used for manufacture of an organic electroluminescence element to show luminance 180 cd/m<sup>2</sup> at 10 V.

IT 221327-82-8P, 2-( $\beta$ -Naphthyl)-5-(4-vinylphenyl)-oxadiazole-N-vinylcarbazole block copolymer  
(block copolymers suitable for durable organic electroluminescence elements with high luminous efficiency)

RN 221327-82-8 HCAPLUS

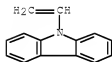
CN 9H-Carbazole, 9-ethenyl-, polymer with 2-(4-ethenylphenyl)-5-(2-naphthalenyl)-1,3,4-oxadiazole, block (9CI) (CA INDEX NAME)

CRN 21464-06-2  
 CMF C20 H14 N2 O



CM 2

CRN 1484-13-5  
 CMF C14 H11 N



- IC ICM C08F297-00  
 ICS C09K011-06; H05B033-14; H05B033-22; C08F297-00; C08F212-14;  
 C08F226-12
- CC 35-4 (Chemistry of Synthetic High Polymers)  
 Section cross-reference(s): 73
- ST vinylcarbazole block copolymer manuf durable  
 electroluminescence; oxadiazole block copolymer high  
 luminous efficiency; living polymn vinylcarbazole oxadiazole  
 block copolymer
- IT Electroluminescent devices  
 (block copolymers suitable for durable organic  
 electroluminescence elements with high luminous  
 efficiency)
- IT Polymerization  
 Polymerization  
 (cationic, living; block copolymers suitable for durable organic  
 electroluminescence elements with high luminous  
 efficiency)
- IT Polymerization  
 Polymerization  
 (living, radical; block copolymers suitable for durable organic  
 electroluminescence elements with high luminous  
 efficiency)
- IT C21327-8C-8P, 2-( $\beta$ -Naphthyl)-5-(4-vinylphenyl)-oxadiazole-  
 N-vinylcarbazole block copolymer  
 (block copolymers suitable for durable organic  
 electroluminescence elements with high luminous  
 efficiency)

L44 ANSWER 54 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1999:141737 HCAPLUS Full-text

DOCUMENT NUMBER: 130:338917

TITLE: Synthesis and electroluminescent

properties of heterocycle-containing

poly(p-phenylene vinylene) derivatives

Wang, Shu; Hua, Wenting; Zhang, Fengling; Wang,

Yongsheng

AUTHOR(S):

CORPORATE SOURCE:

Department of Chemistry, Peking University,

Beijing, 100871, Peop. Rep. China

SOURCE:

Synthetic Metals (1999), 99(3), 249-252

CODEN: SYMEDZ; ISSN: 0379-6779

PUBLISHER:

Elsevier Science S.A.

DOCUMENT TYPE:

Journal

LANGUAGE:

English

ED Entered STN: 05 Mar 1999

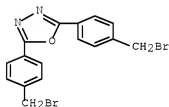
AB Two novel conjugated polymers were synthesized by the Wittig reaction. The multilayer light emitting diodes were fabricated and showed green to blue electro- luminescence.

IT 58370-39-1P 221615-56-1P

(monomer; synthesis and electroluminescent properties of heterocycle-containing poly(p-phenylene vinylene) derivs.)

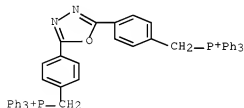
RN 58370-39-1 HCAPLUS

CN 1,3,4-Oxadiazole, 2,5-bis[4-(bromomethyl)phenyl]- (CA INDEX NAME)



RN 221615-56-1 HCAPLUS

CN Phosphonium, [1,3,4-oxadiazole-2,5-diylbis(4,1-phenylenemethylene)]bis[triphenyl-, dibromide (9CI) (CA INDEX NAME)



IT 224183-10-2P 224183-12-4P 224183-14-6P

224183-15-7P

(synthesis and electroluminescent properties of

heterocycle-containing poly(p-phenylene vinylene) derivs.)

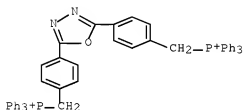
RN 224183-10-2 HCAPLUS

CN Phosphonium, [1,3,4-oxadiazole-2,5-diylbis(4,1-phenylenemethylene)]bis[triphenyl-, dibromide, polymer with 9-heptyl-9H-carbazole-3,6-dicarboxaldehyde (9CI) (CA INDEX NAME)

CM 1

CRN 221615-56-1

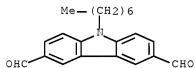
CMF C52 H42 N2 O P2 . 2 Br

● 2 Br<sup>-</sup>

CM 2

CRN 173483-07-3

CMF C21 H23 N O2



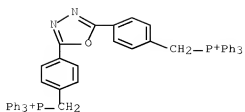
RN 224183-12-4 HCAPLUS

CN Phosphonium, [1,3,4-oxadiazole-2,5-diylbis(4,1-phenylenemethylene)]bis[triphenyl-, dibromide, polymer with 1,4-benzenedicarboxaldehyde (9CI) (CA INDEX NAME)

CM 1

CRN 221615-56-1

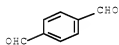
CMF C52 H42 N2 O P2 . 2 Br



CM 2

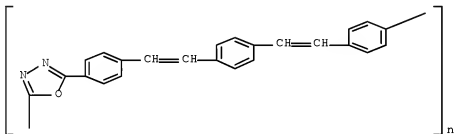
CRN 623-27-8

CMF C8 H6 O2



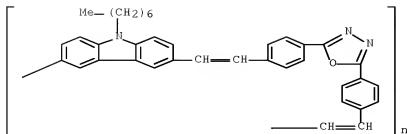
RN 224183-14-6 HCAPLUS

CN Poly(1,3,4-oxadiazole-2,5-diyl-1,4-phenylene-1,2-ethenediyl-1,4-phenylene-1,2-ethenediyl-1,4-phenylene) (9CI) (CA INDEX NAME)

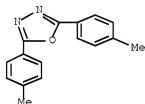


RN 224183-15-7 HCAPLUS

CN Poly[(9-heptyl-9H-carbazole-3,6-diyl)-1,2-ethenediyl-1,4-phenylene-1,3,4-oxadiazole-2,5-diyl-1,4-phenylene-1,2-ethenediyl] (9CI) (CA INDEX NAME)



IT 2491-91-0  
 (synthesis and electroluminescent properties of  
 heterocycle-containing poly(p-phenylene vinylene) derivs.)  
 RN 2491-91-0 HCAPLUS  
 CN 1,3,4-Oxadiazole, 2,5-bis(4-methylphenyl)- (CA INDEX NAME)



CC 38-3 (Plastics Fabrication and Uses)  
 Section cross-reference(s): 35, 73  
 ST electroluminescent property heterocycle contg  
 polyphenylenevinylene; Wittig reaction polyphenylenevinylene  
 electroluminescent  
 IT Electroluminescent devices  
 (multilayer; synthesis and electroluminescent properties  
 of heterocycle-containing poly(p-phenylene vinylene) derivs.)  
 IT Electric current-potential relationship  
 Luminescence  
 Luminescence, electroluminescence  
 Polymerization  
 UV and visible spectra  
 Wittig reaction  
 (synthesis and electroluminescent properties of  
 heterocycle-containing poly(p-phenylene vinylene) derivs.)  
 IT Poly(arylenealkenylenes)  
 (synthesis and electroluminescent properties of  
 heterocycle-containing poly(p-phenylene vinylene) derivs.)  
 IT 58370-39-1P 173483-07-3P 221615-56-1P  
 (monomer; synthesis and electroluminescent properties of  
 heterocycle-containing poly(p-phenylene vinylene) derivs.)  
 IT 224183-10-2P 224183-12-4P 224183-14-6P  
 224183-15-7P  
 (synthesis and electroluminescent properties of  
 heterocycle-containing poly(p-phenylene vinylene) derivs.)  
 IT 86-74-8, Carbazole 128-08-5, N-Bromosuccinimide 629-04-9,  
 1-Bromoheptane 2491-91-0 4041-20-7

(synthesis and electroluminescent properties of heterocycle-containing poly(p-phenylene vinylene) derivs.)

REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L44 ANSWER 55 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1999:112372 HCAPLUS Full-text

DOCUMENT NUMBER: 130:252741

TITLE: Highly Efficient Light-Emitting

Polymers Composed of Both Hole and Electron Affinity Units in the Conjugated Main Chain

AUTHOR(S): Song, Seung-Yong; Jang, Min Sik; Shim, Hong-Ku;

Hwang, Do-Hoon; Zyung, Taehyoung

CORPORATE SOURCE: Department of Chemistry, Korea Advanced Institute

of Science and Technology, Taejeon, 305-701, S.

Korea

SOURCE: Macromolecules (1999), 32(5), 1482-1487

CODEN: MAMOBX; ISSN: 0024-9297

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

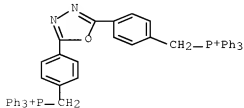
ED Entered STN: 19 Feb 1999

AB Two fully conjugated alternating copolymers containing both carbazole and oxadiazole units were prepared through the Wittig condensation polymerization of carbazole units linked with oxadiazole units via meta and para positions. The polymers with the para linkage (PPOX-CAR) and the meta linkage (PMOX-CAR) in the main chain were soluble in common organic solvents and thermally stable on heating (the weight loss was less than 5% on heating to about 400° under nitrogen atmospheric). The maximum photoluminescence and the electroluminescence wavelengths of PPOX-CAR and PMOX-CAR were varied from 495 nm in the greenish-blue emission region to 450 nm in the blue emission region depending on the kink structure. The turn-on voltage of PPOX-CAR and PMOX-CAR was 7.5 and 10.5 V, resp., for single-layer light-emitting diodes of Al/PPOX-CAR or PMOX-CAR/ITO glass. The maximum brightness of the Al/PPOX-CAR/ITO single-layer device was 500 cd/m<sup>2</sup> at 20 V.

IT 221615-56-1P, 2,5-Bis(4-tolylene-triphenylphosphonium bromide)-1,3,4-oxadiazole 221615-58-3P, 2,5-Bis(3-tolylene-triphenylphosphonium bromide)-1,3,4-oxadiazole (monomer; preparation and luminescence of carbazole-m- or p-oxadiazole based conjugated polymers and efficiency of light-emitting diodes)

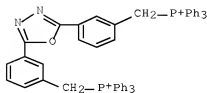
RN 221615-56-1 HCAPLUS

CN Phosphonium, [1,3,4-oxadiazole-2,5-diylbis(4,1-phenylenemethylene)]bis[triphenyl-, dibromide (9CI) (CA INDEX NAME)



● 2 Br-

RN 221615-58-3 HCAPLUS  
 CN Phosphonium, [1,3,4-oxadiazole-2,5-diylbis(3,1-phenylenemethylene)]bis[triphenyl-, dibromide (9CI) (CA INDEX NAME)

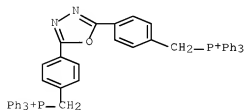


IT 221615-59-4P, 2,5-Bis(4-tolylene-triphenylphosphonium bromide)-1,3,4-oxadiazole-3,6-Diformyl-9-(2-ethylhexyl)-carbazole copolymer 221615-60-7P, 2,5-Bis(4-tolylene-triphenylphosphonium bromide)-1,3,4-oxadiazole-3,6-Diformyl-9-(2-ethylhexyl)-carbazole copolymer, SRU 221615-62-9P, 2,5-Bis(3-tolylene-triphenylphosphonium bromide)-1,3,4-oxadiazole-3,6-Diformyl-9-(2-ethylhexyl)-carbazole copolymer 221615-64-1P, 2,5-Bis(3-tolylene-triphenylphosphonium bromide)-1,3,4-oxadiazole-3,6-Diformyl-9-(2-ethylhexyl)-carbazole copolymer, SRU (preparation and luminescence of carbazole-m- or p-oxadiazole based conjugated polymers and efficiency of light-emitting diodes)

RN 221615-59-4 HCAPLUS  
 CN Phosphonium, [1,3,4-oxadiazole-2,5-diylbis(4,1-phenylenemethylene)]bis[triphenyl-, dibromide, polymer with 9-(2-ethylhexyl)-9H-carbazole-3,6-dicarboxaldehyde (9CI) (CA INDEX NAME)

CM 1

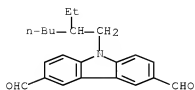
CRN 221615-56-1  
 CMF C52 H42 N2 O P2 . 2 Br



CM 2

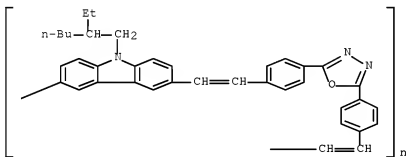
CRN 169051-20-1

CMF C22 H25 N O2



RN 221615-60-7 HCAPLUS

CN Poly[[9-(2-ethylhexyl)-9H-carbazole-3,6-diyl]-1,2-ethenediyl-1,4-phenylene-1,3,4-oxadiazole-2,5-diyl-1,4-phenylene-1,2-ethenediyl]  
(9CI) (CA INDEX NAME)



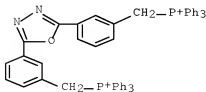
RN 221615-62-9 HCAPLUS

CN Phosphonium, [1,3,4-oxadiazole-2,5-diylbis(3,1-phenylenemethylene)]bis[triphenyl-, dibromide, polymer with  
9-(2-ethylhexyl)-9H-carbazole-3,6-dicarboxaldehyde (9CI) (CA INDEX  
NAME)

CM 1

CRN 221615-58-3

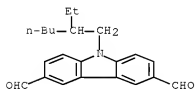
CMF C52 H42 N2 O P2 . 2 Br

● 2 Br<sup>-</sup>

CM 2

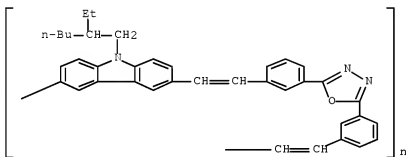
CRN 169051-20-1

CMF C22 H25 N O2



RN 221615-64-1 HCAPLUS

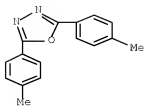
CN Poly[[9-(2-ethylhexyl)-9H-carbazole-3,6-diyl]-1,2-ethenediyl-1,3-phenylene-1,3,4-oxadiazole-2,5-diyl-1,3-phenylene-1,2-ethenediyl]  
(9CI) (CA INDEX NAME)



IT 2491-91-0P, 2,5-Bis(4-methylphenyl)-1,3,4-oxadiazole  
58370-39-1P, 2,5-Bis[4-(bromomethyl)phenyl]-1,3,4-oxadiazole  
59646-37-6P, 2,5-Bis(3-methylphenyl)-1,3,4-oxadiazole  
202344-68-1P, 2,5-Bis[3-(bromomethyl)phenyl]-1,3,4-oxadiazole  
(preparation and luminescence of carbazole-m- or p-oxadiazole  
based conjugated polymers and efficiency of light-  
emitting diodes)

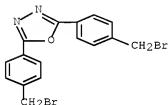
RN 2491-91-0 HCAPLUS

CN 1,3,4-Oxadiazole, 2,5-bis(4-methylphenyl)- (CA INDEX NAME)



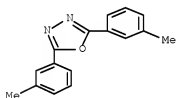
RN 58370-39-1 HCAPLUS

CN 1,3,4-Oxadiazole, 2,5-bis[4-(bromomethyl)phenyl]- (CA INDEX NAME)



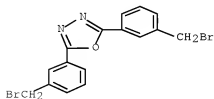
RN 59646-37-6 HCAPLUS

CN 1,3,4-Oxadiazole, 2,5-bis[3-methylphenyl]- (CA INDEX NAME)



RN 202344-68-1 HCAPLUS

CN 1,3,4-Oxadiazole, 2,5-bis[3-(bromomethyl)phenyl]- (CA INDEX NAME)

CC 35-5 (Chemistry of Synthetic High Polymers)  
Section cross-reference(s): 36, 73

- ST carbazole oxadiazole conjugated polymer prepn photoluminescence chain structure; light emitting diode carbazole oxadiazole conjugated polymer
- IT Polymerization  
(Wittig condensation; preparation and luminescence of carbazole-m- or p-oxadiazole based conjugated polymers and efficiency of light-emitting diodes)
- IT Polymers, preparation  
(conjugated; preparation and luminescence of carbazole-m- or p-oxadiazole based conjugated polymers and efficiency of light-emitting diodes)
- IT Electric current carriers  
(injection; preparation and luminescence of carbazole-m- or p-oxadiazole based conjugated polymers and efficiency of light-emitting diodes)
- IT Polymer chains  
(length, conjugated segment; preparation and luminescence of carbazole-m- or p-oxadiazole based conjugated polymers and efficiency of light-emitting diodes)
- IT Polyoxadiazoles  
Polyoxadiazoles  
(polyamine-; preparation and luminescence of carbazole-m- or p-oxadiazole based conjugated polymers and efficiency of light-emitting diodes)
- IT Polyamines  
Polyamines  
(polyoxadiazole-; preparation and luminescence of carbazole-m- or p-oxadiazole based conjugated polymers and efficiency of light-emitting diodes)
- IT Electroluminescent devices  
Electron delocalization  
Luminescence  
Luminescence, electroluminescence  
Wittig reaction  
(preparation and luminescence of carbazole-m- or p-oxadiazole based conjugated polymers and efficiency of light-emitting diodes)
- IT 169051-20-1P, 3,6-Diformyl-9-(2-ethylhexyl)-carbazole 221615-56-1P, 2,5-Bis(4-tolylene-triphenylphosphonium bromide)-1,3,4-oxadiazole 221615-58-3P, 2,5-Bis(3-tolylene-triphenylphosphonium bromide)-1,3,4-oxadiazole  
(monomer; preparation and luminescence of carbazole-m- or p-oxadiazole based conjugated polymers and efficiency of light-emitting diodes)
- IT 7429-90-5, Aluminum, uses 50926-11-9, Indium tin oxide  
(preparation and luminescence of carbazole-m- or p-oxadiazole based conjugated polymers and efficiency of light-emitting diodes)
- IT 221615-59-4P, 2,5-Bis(4-tolylene-triphenylphosphonium bromide)-1,3,4-oxadiazole-3,6-Diformyl-9-(2-ethylhexyl)-carbazole copolymer 221615-60-7P, 2,5-Bis(4-tolylene-triphenylphosphonium bromide)-1,3,4-oxadiazole-3,6-Diformyl-9-(2-ethylhexyl)-carbazole copolymer, SRU 221615-62-9P, 2,5-Bis(3-tolylene-triphenylphosphonium bromide)-1,3,4-oxadiazole-3,6-Diformyl-9-(2-ethylhexyl)-carbazole copolymer 221615-64-1P, 2,5-Bis(3-tolylene-triphenylphosphonium bromide)-1,3,4-oxadiazole-3,6-Diformyl-9-(2-ethylhexyl)-carbazole copolymer, SRU  
(preparation and luminescence of carbazole-m- or p-oxadiazole based conjugated polymers and efficiency of light-emitting diodes)

IT 128-08-5, N-Bromosuccinimide 603-35-0, Triphenylphosphine, reactions  
 874-60-2, p-Toluoyl chloride 1711-06-4, 3-Toluoyl chloride  
 5118-31-0, 4-Methylbenzoate 7803-57-8, Hydrazine monohydrate  
 10025-87-3, Phosphoryl chloride 16887-59-5, 3-Methylbenzoate  
 (preparation and luminescence of carbazole-m- or p-oxadiazole  
 based conjugated polymers and efficiency of light-  
 emitting diodes)

IT 1530-73-0P 2491-91-0P, 2,5-Bis(4-methylphenyl)-1,3,4-  
 oxadiazole 3619-22-5P, 4-Methylbenzoyl hydrazide 13050-47-0P,  
 3-Methylbenzoic Hydrazide 58376-39-1P, 2,5-Bis[4-  
 (bromomethyl)phenyl]-1,3,4-oxadiazole 59646-36-5P  
 59646-37-6P, 2,5-Bis(3-methylphenyl)-1,3,4-oxadiazole  
 292344-68-1P, 2,5-Bis[3-(bromomethyl)phenyl]-1,3,4-oxadiazole  
 (preparation and luminescence of carbazole-m- or p-oxadiazole  
 based conjugated polymers and efficiency of light-  
 emitting diodes)

REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR  
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
 RE FORMAT

L44 ANSWER 56 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1998:548305 HCAPLUS Full-text

DOCUMENT NUMBER: 129:331256

ORIGINAL REFERENCE NO.: 129:67565a,67568a

TITLE: Luminescent properties of copolymeric  
 dyad compounds containing 1,8-naphthalimide and  
 1,3,4-oxadiazole

AUTHOR(S): Zhu, Weihong; Hu, Cheng; Chen, Kongchang; Tian, He

CORPORATE SOURCE: Inst. Fine Chem., East China Univ. Sci. Technol.,  
 Shanghai, 200237, Peop. Rep. China

SOURCE: Synthetic Metals (1998), 96(2), 151-154  
 CODEN: SYMEDZ; ISSN: 0379-6779

PUBLISHER: Elsevier Science S.A.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 28 Aug 1998

AB Several 1,8-naphthalimide dyad compds. connected with 1,3,4-oxadiazole at  
 different positions were synthesized and the optical absorption and  
 fluorescence were measured. Some of the resulting monomers were polymerized  
 with N-vinyl carbazole to form a single-layer electroluminescence (EL) device  
 film, which consists of an electron-transporting unit (oxadiazole), hole-  
 transporting unit (PVK), and emitting unit. The photoemission and  
 electroemission of the dyad compds. are near 540 nm, with a maximum luminance  
 of 350 cd/m<sup>2</sup> and luminous efficiency of 3.02 lm/W at 14 V.

IT 186026-86-8P 186026-88-0P 186026-92-6P

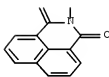
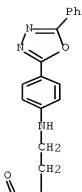
215320-66-4P 215320-68-6P 215320-70-0P

215320-71-1P

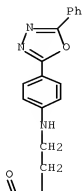
(preparation and luminescent properties of dyad  
 1,8-naphthalimide-1,3,4-oxadiazole monomers)

RN 186026-86-8 HCAPLUS

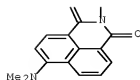
CN 1H-Benz[de]isoquinoline-1,3(2H)-dione, 2-[2-[[4-(5-phenyl-1,3,4-  
 oxadiazol-2-yl)phenyl]amino]ethyl]- (CA INDEX NAME)



RN 186026-88-0 HCAPLUS  
 CN 1H-Benz[de]isoquinoline-1,3(2H)-dione, 6-(dimethylamino)-2-[2-[[4-(5-phenyl-1,3,4-oxadiazol-2-yl)phenyl]amino]ethyl]- (CA INDEX NAME)

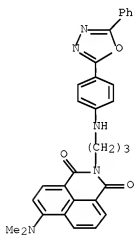


PAGE 2-A



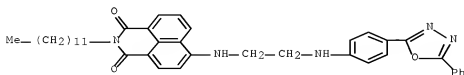
RN 186026-92-6 HCAPLUS

CN 1H-Benz[de]isoquinoline-1,3(2H)-dione, 6-(dimethylamino)-2-[3-[[4-(5-phenyl-1,3,4-oxadiazol-2-yl)phenyl]amino]propyl]- (CA INDEX NAME)



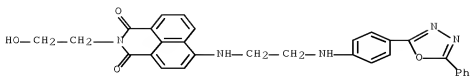
RN 215320-66-4 HCAPLUS

CN 1H-Benz[de]isoquinoline-1,3(2H)-dione, 2-dodecyl-6-[[2-[[4-(5-phenyl-1,3,4-oxadiazol-2-yl)phenyl]amino]ethyl]amino]- (CA INDEX NAME)



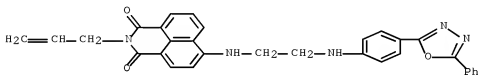
RN 215320-68-6 HCAPLUS

CN 1H-Benz[de]isoquinoline-1,3(2H)-dione, 2-(2-hydroxyethyl)-6-[[2-[[4-(5-phenyl-1,3,4-oxadiazol-2-yl)phenyl]amino]ethyl]amino]- (CA INDEX NAME)



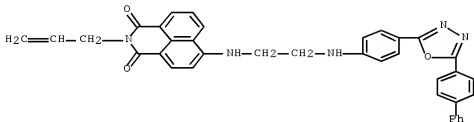
RN 215320-70-0 HCAPLUS

CN 1H-Benz[de]isoquinoline-1,3(2H)-dione, 6-[[2-[[4-(5-phenyl-1,3,4-oxadiazol-2-yl)phenyl]amino]ethyl]amino]-2-(2-propen-1-yl)- (CA INDEX NAME)



RN 215320-71-1 HCAPLUS

CN 1H-Benz[de]isoquinoline-1,3(2H)-dione, 6-[[2-[[4-(5-[1,1'-biphenyl]-4-yl-1,3,4-oxadiazol-2-yl)phenyl]amino]ethyl]amino]-2-(2-propen-1-yl)- (CA INDEX NAME)



IT 215320-73-3P

(preparation and luminescent properties of dyad  
1,8-naphthalimide-1,3,4-oxadiazole-N-vinylcarbazole copolymer for  
LEDs)

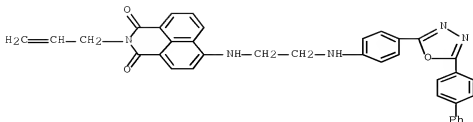
RN 215320-73-3 HCAPLUS

CN 1H-Benz[de]isoquinoline-1,3(2H)-dione, 6-[[2-[[4-(5-[1,1'-biphenyl]-4-yl-1,3,4-oxadiazol-2-yl)phenyl]amino]ethyl]amino]-2-(2-propenyl)-, polymer with 9-ethenyl-9H-carbazole (9CI) (CA INDEX NAME)

CM 1

CRN 215320-71-1

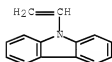
CMF C37 H29 N5 O3



CM 2

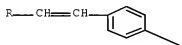
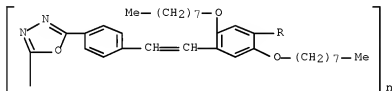
CRN 1484-13-5

CMF C14 H11 N



- CC 36-5 (Physical Properties of Synthetic High Polymers)  
Section cross-reference(s): 35, 73
- ST naphthalimide oxadiazole vinylcarbazole copolymer prep  
electroluminescence; dyad naphthalimide oxadiazole prep  
polymn; luminescence photoemission naphthalimide oxadiazole  
vinylcarbazole copolymer
- IT Fluorescence  
Hole (electron)  
Luminescence  
Luminescence, electroluminescence  
(preparation and luminescent properties of dyad  
1,8-naphthalimide-1,3,4-oxadiazole-N-vinylcarbazole copolymer for  
LEDs)
- IT 186026-86-8P 186026-88-0P 186026-92-6P  
215320-66-4P 215320-68-6P 215320-70-0P  
215320-71-1P  
(preparation and luminescent properties of dyad  
1,8-naphthalimide-1,3,4-oxadiazole monomers)
- IT 7439-95-4, Magnesium, uses 7440-22-4, Silver, uses 50926-11-9, ITO  
(preparation and luminescent properties of dyad  
1,8-naphthalimide-1,3,4-oxadiazole-N-vinylcarbazole copolymer for  
LEDs)
- IT 215320-73-3P  
(preparation and luminescent properties of dyad  
1,8-naphthalimide-1,3,4-oxadiazole-N-vinylcarbazole copolymer for  
LEDs)
- REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
RE FORMAT

DOCUMENT NUMBER: 129:209054  
 ORIGINAL REFERENCE NO.: 129:42319a,42322a  
 TITLE: Polymers with Bipolar Carrier Transport Abilities for Light Emitting Diodes  
 AUTHOR(S): Peng, Zhonghua; Bao, Zhenan; Galvin, Mary E.  
 CORPORATE SOURCE: Bell Laboratories, Lucent Technologies, Murray Hill, NJ, 07974, USA  
 SOURCE: Chemistry of Materials (1998), 10(8), 2086-2090  
 CODEN: CMATEX; ISSN: 0897-4756  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 ED Entered STN: 19 Aug 1998  
 AB Efficient and stable polymer light emitting diodes (LEDs) have recently been extensively pursued. To achieve efficient LED performance for a single layer device, a polymer with bipolar carrier transport abilities and high-luminescence quantum yields is desired. The authors envision that if an emissive polymer combines both electron and hole transporting segments, it could possess comparable bipolar carrier transport ability. The authors report 2 oxadiazole-containing poly(phenylenevinylenes) (PPVs). An oxadiazole unit is introduced into the polymer backbone to improve the electron injection/transport properties. The oligo(phenylenevinylene) segments function as both hole transporter and emitter. In 1 polymer, carbazole is introduced in the side chain to improve the hole transport properties. The syntheses and device evaluations of these polymers are reported.  
 IT 212133-54-5P 212133-56-7P  
 (oxadiazole-containing phenylene-vinylene polymers with bipolar carrier transport abilities for light emitting diodes)  
 RN 212133-54-5 HCAPLUS  
 CN Poly[1,3,4-oxadiazole-2,5-diyl-1,4-phenylene-1,2-ethenediyl[2,5-bis(octyloxy)-1,4-phenylene]-1,2-ethenediyl-1,4-phenylene] (9CI) (CA INDEX NAME)

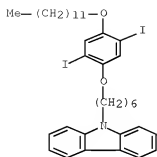


RN 212133-56-7 HCAPLUS  
 CN 9H-Carbazole, 9-[6-[4-(dodecyloxy)-2,5-diiodophenoxy]hexyl]-, polymer with 2,5-bis[4-[2-[4-iodo-2,5-bis(octyloxy)phenyl]ethenyl]phenyl]-1,3,4-oxadiazole and 1,4-diethenylbenzene (9CI) (CA INDEX NAME)

CM 1

CRN 212133-55-6

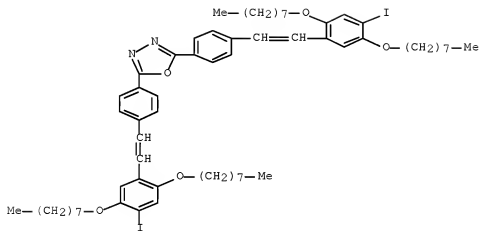
CMF C36 H47 I2 N O2



CM 2

CRN 209163-84-8

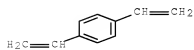
CMF C62 H84 I2 N2 O5



CM 3

CRN 105-06-6

CMF C10 H10



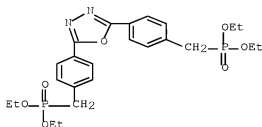
IT 58370-36-6 209163-84-8

(oxadiazole-containing phenylene-vinylene polymers with bipolar carrier

transport abilities for light emitting diodes)

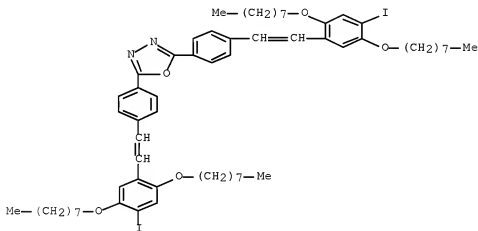
RN 58370-38-0 HCAPLUS

CN Phosphonic acid, P,P'-[(1,3,4-oxadiazole-2,5-diyl)bis(4,1-phenylenemethylene)]bis-, P,P,P',P'-tetraethyl ester (CA INDEX NAME)



RN 209163-84-8 HCAPLUS

CN 1,3,4-Oxadiazole, 2,5-bis[4-[2-[4-iodo-2,5-bis(octyloxy)phenyl]ethenyl]phenyl]- (CA INDEX NAME)



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 35, 36, 38, 72, 76, 77

IT Band gap

Electric current-potential relationship

Electroluminescent devices

Electron transport

Fluorescence

HOMO (molecular orbital)

Hole transport

LUMO (molecular orbital)

NMR (nuclear magnetic resonance)

Reduction potential

UV and visible spectra

(oxadiazole-containing phenylene-vinylene polymers with bipolar carrier transport abilities for light emitting diodes)

IT Polymers, properties  
 (oxadiazole-containing phenylene-vinylene polymers with bipolar carrier transport abilities for light emitting diodes)

IT 212133-54-5P 212133-56-7P  
 (oxadiazole-containing phenylene-vinylene polymers with bipolar carrier transport abilities for light emitting diodes)

IT 94847-10-6P 212133-55-6P  
 (oxadiazole-containing phenylene-vinylene polymers with bipolar carrier transport abilities for light emitting diodes)

IT 86-74-8, 9H-Carbazole 105-06-6 629-03-8, 1,6-Dibromohexane 58370-38-0 123415-45-2 206433-38-7 209163-84-8  
 (oxadiazole-containing phenylene-vinylene polymers with bipolar carrier transport abilities for light emitting diodes)

REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L44 ANSWER 58 OF 58 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1997:648557 HCAPLUS Full-text  
 DOCUMENT NUMBER: 127:301096  
 ORIGINAL REFERENCE NO.: 127:58707a  
 TITLE: Oxadiazole group-containing macromolecules, their preparation, and organic electroluminescent devices therefrom

INVENTOR(S): Kido, Junji; Fukuoka, Naohiko  
 PATENT ASSIGNEE(S): Chemipro Kasei K. K., Japan; Chemipro Kasei Ltd.  
 SOURCE: Jpn. Kokai Tokkyo Koho, 17 pp.  
 CODEN: JKXXAF

DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 09255725	A	19970930	JP 1996-94818	19960325
			<--	
JP 3698481	B2	20050921		
PRIORITY APPLN. INFO.:			JP 1996-94818	19960325
			<--	

ED Entered STN: 11 Oct 1997  
 GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB Title macromols. showing number-average mol. weight (Mn) 1,000-1,000,000 have repeating units selected from I-IV [R1-5 = H, substituents; ring A = (substituted) Ph, di-Ph, naphthyl, anthranil; Q1 = aromatic amines] and are prepared from monomers containing vinyl oxadiazoles V. The preparation using V (or VII) and vinyl carbazoles VI as monomers is also claimed. The devices with long service life use the macromols. as electron-transporting materials.

IT 197089-43-3P  
 (electron-transporting material; preparation of novel oxadiazole group-branched macromols. for organic electroluminescent devices)

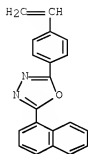
RN 197089-43-3 HCAPLUS  
 CN 9H-Carbazole, 9-ethenyl-, polymer with 2-(4-ethenylphenyl)-5-(1-

naphthalenyl)-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

CM 1

CRN 197089-41-1

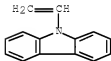
CMF C20 H14 N2 O



CM 2

CRN 1484-13-5

CMF C14 H11 N



IC ICM C08F012-32

ICS C08F212-32; C08F226-06; C08F226-12; C09K011-06; H05B033-22

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 28, 35, 38

ST oxadiazole branched macromol prepn electroluminescent device; vinyl oxadiazole carbazole copolymer electron transporting; deterioration prevention org electroluminescent device

IT Electroluminescent devices

(organic; preparation of novel oxadiazole group-branched macromols. for organic electroluminescent devices)

IT 197089-42-2P 197089-43-3P

(electron-transporting material; preparation of novel oxadiazole group-branched macromols. for organic electroluminescent devices)

=> d his nofile

(FILE 'HOME' ENTERED AT 13:24:26 ON 17 JUL 2008)

FILE 'HCAPLUS' ENTERED AT 13:24:32 ON 17 JUL 2008

L1 1 SEA ABB=ON PLU=ON US20080145705/PN  
SEL RN

FILE 'REGISTRY' ENTERED AT 13:24:56 ON 17 JUL 2008

L2 27 SEA ABB=ON PLU=ON (138372-67-5/BI OR 1484-13-5/BI OR  
15082-28-7/BI OR 155090-83-8/BI OR 2156-04-9/BI OR  
57102-42-8/BI OR 586972-48-7/BI OR 589-87-7/BI OR 7429-90-5  
/BI OR 7440-70-2/BI OR 845755-77-3/BI OR 845755-86-4/BI OR  
847670-86-4/BI OR 847670-87-5/BI OR 847670-90-0/BI OR  
847670-91-1/BI OR 847670-92-2/BI OR 847670-93-3/BI OR  
847670-94-4/BI OR 847670-95-5/BI OR 847670-96-6/BI OR  
847670-97-7/BI OR 847670-98-8/BI OR 847670-99-9/BI OR  
847671-00-5/BI OR 85884-56-6/BI OR 86-74-8/BI)

L3 STR

L4 STR

L5 SCR 2043

L6 15 SEA SSS SAM L3 AND L4 AND L5

L7 50 SEA SSS SAM L4

L8 STR L4

L9 50 SEA SSS SAM L8

L10 50 SEA SSS SAM L8 AND L5

L11 50 SEA SSS SAM L4 AND L5

L12 14331 SEA SSS FUL L4 AND L5

L13 9 SEA ABB=ON PLU=ON L2 AND L12

L14 50 SEA SSS SAM L3

L15 164928 SEA ABB=ON PLU=ON 16.536/RID

L16 231 SEA ABB=ON PLU=ON L12 AND L15

SAV L12 NEL950/A

L17 4 SEA ABB=ON PLU=ON L16 AND L2

FILE 'HCAPLUS' ENTERED AT 14:36:56 ON 17 JUL 2008

L18 137 SEA ABB=ON PLU=ON L16

L19 16218 SEA ABB=ON PLU=ON L12

L20 15983 SEA ABB=ON PLU=ON L15

L21 1068 SEA ABB=ON PLU=ON L19 AND L20

L22 QUE ABB=ON PLU=ON LUM!N? OR ELECTROLUM!N? OR ORGANOLUM!N?  
OR (ELECTRO OR ORGANO OR ORG#) (2A)LUM!N? OR LIGHT?(2A) (EMI  
T? OR EMISSION?) OR EL OR E(W)L OR L(W)E(W)D OR OLED

L23 117 SEA ABB=ON PLU=ON L18 AND L22

L24 92 SEA ABB=ON PLU=ON L18(L)L22

L25 4 SEA ABB=ON PLU=ON L17

L26 1 SEA ABB=ON PLU=ON L24 AND L1

FILE 'REGISTRY' ENTERED AT 14:41:30 ON 17 JUL 2008

L27 5102 SEA ABB=ON PLU=ON L12 AND CARBAZOL?

L28 159529 SEA ABB=ON PLU=ON L15 AND OXADIAZOL?

L29 175 SEA ABB=ON PLU=ON L27 AND L28

L30 143 SEA ABB=ON PLU=ON L29 NOT 1-100/M

FILE 'HCAPLUS' ENTERED AT 14:43:07 ON 17 JUL 2008

L31 97 SEA ABB=ON PLU=ON L30

L32 90 SEA ABB=ON PLU=ON L31 AND L23

L33 58 SEA ABB=ON PLU=ON L32 AND (1840-2003)/PRY,AY,PY

# 10/566,950

L34	10005	SEA	ABB=ON	PLU=ON	L27
L35	15972	SEA	ABB=ON	PLU=ON	L28
L36	990	SEA	ABB=ON	PLU=ON	L34 AND L35
L37	786	SEA	ABB=ON	PLU=ON	L36 AND L22
L38	1	SEA	ABB=ON	PLU=ON	L37 AND L1
L39	157	SEA	ABB=ON	PLU=ON	L37 AND RACT/RL AND DEV/RL
L40	75	SEA	ABB=ON	PLU=ON	L39 AND PRP/RL
L41	72	SEA	ABB=ON	PLU=ON	L40 AND OPTIC?/SC, SX
L42	15	SEA	ABB=ON	PLU=ON	L41 AND L31
L43	10	SEA	ABB=ON	PLU=ON	L42 AND (1840-2003)/PRY, AY, PY
L44	58	SEA	ABB=ON	PLU=ON	L33 OR L43